Chemical

February 7, 1953

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Shea's Shea: Grown from a mite in a moment, his firm is now fourth in phosphorus . . . p. 20

New polyester rubber outwears GR-S, but high cost and low adhesion are drawbacks . . p. 32

- Target: Sales to railroads of product to destroy fire-hazardous tumbleweed p. 30
- More hazards, more laws; panel briefs compressed gas makers on current regulations p. 51

Water-repellent paints, polishes are in van of silicone specialties parade p. 64

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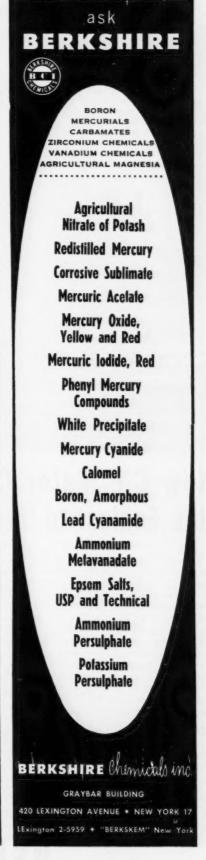
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The new General Electric motor control center is the most up-to-date equipment for the centralized control of a-c motors up to 200 horsepower. Each control center is planned for the job it is to handle, but it can rapidly be modified to meet changed requirements. Standard units can be easily interchanged or substituted, new units can be quickly added. Units may be mounted back-to-back in same standard enclosure. Master terminal boards may be located at either top or bottom of cabinet.

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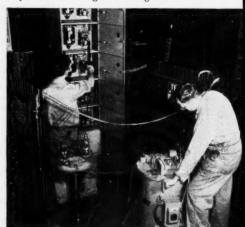
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You can put your confidence in_

GENERAL ELECTRIC



OPINION

Target: Future Sales

This week we are introducing a new CW feature which we think you will find both intriguing and informative. More important, we hope you will find it profitable—on a cold dollarsand-cents basis-to read. Objective of the new feature is to highlight opportunities for future profit; its theme will be unusual (and often unrecognized) avenues for application research and new product development.

Because our venture is an innovation in chemical publishing-and, as far as we know, in the entire publishing field-I thought you might be interested in a brief behind-the-scenes outline of how the idea originated, why we decided to launch the project, what we plan for it-and for you. This

is the background:

Just over two years ago when CHEM-ICAL WEEK was the then-monthly CHEMICAL INDUSTRIES, we defined for ourselves (in a two-page memo) the editorial philosophy of the weekly magazine-to-be. This, in part, is what it said: "It is not our job merely to report the news, to chronicle isolated, individual events. Any fool can report what has happened. Rather, we must screen, sift, appraise the news and determine what is significant, what is trivial and incidental.

"Significant developments-and the significance can only be determined after we have a robust quota of facts on hand-must be correlated and interpreted. We must always keep in mind that, just as the present grew out of the past, so the future has its making in the present.

"Our readers are interested in the past only as background information; the future is their real concern. Our editorial reporting must be thoroughly backgrounded, but our emphasis must be on the future.'

That emphasis on the future has characterized our past 107 weekly issues. We have stressed, for instance, what new processes will mean to production techniques; what current research augurs in various fields; what present market patterns foreshadow for both buyer and seller. But neither we - nor any other publication - has pin-pointed specific areas where research can profitably be done, new products profitably developed, markets profitably opened up.

That's why we decided to launch a project to survey the as-yet-unfulfilled needs of chemical consumers, to determine what the major problems of industry are which might be solved



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Here's help in planning power for electrolytic production!



ome

This new booklet by Westinghouse can be a valuable aid in planning power for your electrolytic processes. Each method of obtaining d-c power is discussed by Westinghouse engineers, with charts and curves showing the relative advantages of each method.

Efficiency gain means thousands annually

For example, take the matter of efficiency in converting a-c to d-c. A 2% gain means thousands of dollars in the yearly power bill. So this book discusses the efficiency of the various systems—Ignitron rectifiers, M-G sets, and rotary converters, and how the efficiency varies according to operating voltage.

Booklet provides vital operating information

Other important subjects are discussed: how and why Ignitron rectifiers have lowest first cost and high reliability; how M-G sets are best for variable voltage output, and other vital factors. It provides information on determining the best d-c operating voltage and shows why voltage should be as high as possible.

Which is the best system for your plant?

One of the major decisions is whether to buy power or generate your own. There are four popular systems in use: conversion of purchased power, a-c generation and conversion, generation of d-c with steam turbines and with gas engines. This booklet discusses the pros and cons of each system and gives a complete list of the major equipment required.

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OPINION . . .

by new chemical or chemical specialty developments. And we decided to devote a department exclusively to it.

A couple of months ago we gave our project a top priority tag (and top secret, too). Associate Editor John Craig took on the assignment of traveling and querying. He has interviewed textile processors and food packers; pulp makers and theater owners; machine tool manufacturers and leather tanners; farmers and Army officers; cosmetic formulators and petroleum refiners. Already an impressive roster of ideas has been assembled; some, as yet, savor of the impractical; others we are still investigating.

This, however, we will shun: the highly publicized and obvious technical opportunities such as the extraction of chemicals from seawater, development of a continuous process for the production of titanium, extraction of aluminum from clay. Those are well known, multi-million dollar research targets. Correspondingly, we will eschew the "dream stuff"—need for a "non-corrosive sulfuric acid," for example.

We will always endeavor, too, to sketch the research already done, to appraise the present state of product (or process) development, and the future needs. And, of course, we will estimate, at least, the dollar volume of potential business that awaits the successful developer.

Our new feature is titled simply "Target." The first edition is on page

We hope, as we mentioned, that you will find it—and its successors—intriguing, informative and profitable. And we hope, too, that "Target," as an extension of CW's service, will play a role of some importance in helping you to develop new products, to open up new markets.

-W. Alec Jordan, Editor.

Export Course

To the Editor: Recent developments have stimulated the interest of the chemical industry in exporting their products. [You have published] a number of articles on international trade in chemicals . . .

For this reason it may be of interest to your readers to learn that a course in Applied Export Marketing of Drugs and Chemicals will be offered in the spring term of 1953 in the evening sessions of The City College. . . .

The course will cover marketing techniques in the process industries and in the pharmaceutical industry both here and abroad. . . . It will be

OPINION

offered on Thursday evenings . . . at 17 Lexington Ave., New York, N. Y. Registration is open from Jan. 27 to Feb. 9, and the first class will meet Feb. 19.

DANIEL W. KALLMAN The City College New York, N. Y.

Long a Veep

To the Editor: In "Key Changes" (Jan. 10) you promoted Dr. Bretschger to vice-president of Becco. This is one of the smallest promotions of late years inasmuch as he has been vice president practically since Lincoln was shot...

You should indicate that Dr. Bretschger was elected president . . .

RALPH SADLER Vice President John Mather Lupton Co., Inc. New York, N. Y.

Right. To president of Becco a few weeks ago, now also vice-president of the parent Food Machinery & Chemical.—Ed.

Terra Incognita

TO THE EDITOR: Your news article on the proposed split-up of C. I. L. was both interesting and well done . . . but it is a pity more effort could not have been put on the map of Canada.

To a former Canadian it was quite a jolt to see where you placed Vancouver and James Island; Winnipeg and Shawinigan Falls . . .

> C. H. DAVENPORT Research Division Lion Oil Co. El Dorado, Ark.

A sketcher, not a cartographer, the CW artist admits to never having been north of White Plains, west of Hoboken.—ED.

Toward Oligarchy?

To the Editor: A disturbing thought struck me as I read your excellent report on the rise of venture capital firms (Jan. 24). It struck me when you attributed their rise to the tax situation: "It is highly advantageous for

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.



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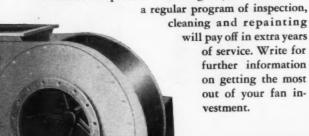
Tips on Making Your Fans Last

RUBBER LINING Gives Fume Fans A New Lease on Life!

Rubber "welded" to all interior parts of these "Buffalo" Exhausters increases their life 3 to 12 times in handling severely corrosive fumes! All-welded strength, accessible construction, high efficiency have made this a popular fume fan in the chemical industries for many years.

Other Tips on Lengthening Fan Life

First, when ordering a fan, specify exactly what it is to handle. Your supplier can then recommend the correct construction material or protective coating. After installation,







OPINION

an individual to invest to get a longterm capital gain—not cash income. Venture capital groups present the means."

I am not versed in economics, so I may be entirely wrong. It seams to me that those individuals who stand to profit by long-term capital gains are those whose incremental income is taxed at a rate exceeding 25%. Now the average man with a wife and two children has to earn over \$10,000 a year before capital gains becomes more attractive than ordinary income.

What I fear, then, is that our tax structure doesn't encourage the majority of our people to invest in industrial enterprises—while it does encourage the wealthy to do so. Will not the rich get richer and ownership of our industry be concentrated in an oligarchy? It looks so to me.

MALCOLM ROBERTSON Knoxville, Tenn.

DATES AHEAD.

Manufacturing Chemists' Assn., Inc., 1953 industry conference on air pollution abatement, Hotel Statler, Detroit, Mich., Feb. 26-27.

Nat'l Assn. of Corrosion Engineers, 1953 conference, Chicago, Ill., March 16-20.

Magnesium Assn., first Internat'l Magnesium Exposition, National Guard Armory, Washington, D.C., March 31-April 2.

Packaging Machinery Mfrs. Institute, semi-annual meeting, Sheraton Hotel, Chicago, Ill., April 18-19.

Assn. Consulting Chemist and Chemical Engineers, Inc., symposium, Hotel Belmont Plaza, New York, N.Y., April 21.

Penna. Mfg. Confectioners' Assn., seventh annual production conference, Lehigh University, Bethlehem, Pa., April 23-24.

Nat'l. Electrical Mfrs. Assn., Edgewater Beach Hotel, Chicago, Ill., March 9-12.

Amer. Trade Assn. Executives, Spring meeting, Mayflower Hotel, Washington, D.C., March 19-20.

Amer. Society of Mechanical Engrs., Deshler-Wallick Hotel, Columbus, O., April 28-30.

Compressed Air & Gas Institute, King & Prince Hotel, St. Simons Island, Ga., May 4-6.

Amer. Oil Chemists' Society, 44th annual meeting, Roosevelt Hotel, New Orleans, La., May 4-6.

Exposition of Basic Materials for Industry, supplementary conference, Hotel Roosevelt, New York, N.Y., June 16-18.

Assn. of Consulting Chemist and Chemical Engrs., annual meeting, Hotel Belmont Plaza, New York, N.Y., Oct. 27.

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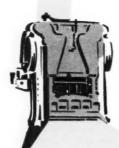


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NEWSLETTER

Still more aluminum—beyond DPA's present goals—seems to be in the cards. Latest new post-Korea producer (to join Anaconda Copper, Olin Industries, Harvey Machine) is Chattanooga's Wheland Co., which plans a \$70-million, 50,000-ton plant in the Chattanooga area. It will be privately financed, but DPA will help with a fast write-off and a government-guaranteed market for the output. Power supply is committed by TVA.

Wheland's proposed plant completes DPA's present goal of 1.7 million tons a year. But now there's talk in Washington about upping the sights. (Alcoa would like to build a 200,000-ton plant in Alaska if Canada will permit diversion of Yukon River water.)

The big snag: finding plant sites where power is plentiful and cheap. Drought-caused power shortages have hurt output.

One area hard hit by recent power failures is the Pacific Northwest. But the Tacoma Chamber of Commerce—whose ax to grind is luring new industry to the locality—is hopeful that new administration policies will encourage utility expansion by agencies other than the federal government. Actively working toward that end are a city-wide committee and the Pacific Northwest Utilities Conference.

One proposed move heartily acclaimed: piping in natural gas.

Another metal due for an output boost is titanium. Du Pont has started expanding its Newport, Del., plant, will soon start on its Edge Moor, Del., facilities. These additions, undertaken at the government's behest, will beef up titanium sponge production by 13,500 tons over the next five years. The major job—at Newport—will take another 15 months.

More controversial is another subject in which the government is involved: water fluoridation. U. S. Public Health Service's advocacy of fluoridation programs has encountered scattered but violent opposition.

Now the "fer's" have some new ammunition to use against the "agin's": Marshall, Texas, has fluoridated its water for six years. Now Dr. Edward Taylor, head of the state health department's dental division, says that Marshall's six-year-olds have 57% fewer cavities than the same age group in a similar, unfluoridated city only 70 miles away.

Released nationally by the Associated Press, the story may well induce irresolute municipalities to hop on the bandwagon.

Appraisal of Reconstruction Finance Corp.-owned synthetic rubber plants was finished by Ralph M. Parsons Co. (Los Angeles), successful bidder for the job, a few days before the Jan. 31 deadline (CW Newsletter, Oct. 25, '52). Morton E. Yohalem, special assistant to RFC Administrator Harry A. McDonald and an expert on corporate reorganization, was in Los Angeles last week discussing the report with Parsons.

Getting the report together is RFC's initial step on the long road toward disposal of the facilities to private industry. It will be incorporated in RFC's report to the President and Congress, which must be submitted by March 1.

Some surprising research facts were turned up by the Defense Department's mail survey of industrial firms, about 2,000 of which—representing some 85% of the nation's research and development capacity—had replied in time to be included in a preliminary report issued last week:

• Research outlay is clipping along at a \$3½-billion annual rate, and the federal government—principally through the Department of Defense and the Atomic Energy Commission—is picking up about half the tab.

• Total cost per technical man is lowest in the chemical industry—\$16,500 a year; highest in the auto industry—\$68,000.

• The research budget averages 2% of sales but it's as high as 13% in the aircraft industry, as low as 0.6% in petroleum refining.

Speaking of research, don't overlook butyl rubber developments—overshadowed by recent news about rosin-extended rubber, Germany's Vulcollan and Goodyear's new product (see p. 32).

Butyl is tops for inner tubes because it's tops in retaining air; but an all-butyl tire—logical step in fabricating a "tubeless" tire—has not yet been successful.

Now U. S. Rubber says it has an all-butyl tire casing which "through its special composition and special construction" will equal GR-S tires in all respects. Other firms (including Standard Oil Development, which has butyl patent rights) are doing similar work, say only that their test results are still "premature."

But even if development men could say, "We're ready to produce butyl tires tomorrow," rubber firms would have to wait until the two government-owned plants are sold to private industry. No company could build new capacity to supply any new demand and expect to compete with the price-set, production-set output of these two units.

What the chemical process industries can expect of the new Administration is clearer now that President Eisenhower has outlined his legislative proposals in his "State of the Union" message. You can expect speedy action on these, since there's no organized opposition:

• Legislation giving Food and Drug Administration the right to go into plants and inspect.

• Gradual tapering-off of wage and price controls—and no "standby" legislation beyond June 30, when present laws expire.

• Continued stockpiling of medical supplies for civil defense.

• Extension of CMP to insure adequate supplies of critical materials for defense production.

Other proposals are touch and go, since Democrats will fight Republicans, and Republicans will fight each other. Among them: extension of reciprocal trade agreements and simplification of customs procedures; postponement of tax cuts until the budget is balanced; amendment of the Taft-Hartley law; "full parity" farm price supports.

No surprise is the content of two bills (H.R. 2244-5) introduced by James J. Delaney, chairman of the now-defunct chemicals-in-foods committee. They embody recommendations made in the committee's final report.

H.R. 2244 requires cosmetics manufacturers to submit proof of their products' safety to FDA before they are cleared for distribution. Also, ingredients must be stated on the labels.

H.R. 2245 puts the burden of proving safety on the manufacturer of food products, whereas now the burden of proving toxicity rests on the FDA. This submission of proof, too, would precede marketing.

. . . The Editors

Can You use the unusual properties of Alkylated Naphthalenes?

NEGATIVE VISCOSITY INDEX—FROM—225 TO—1000

400% GREATER OXIDATION STABILITY

EXTREMELY LOW GASSING COEFFICIENT...

Shell alkylated naphthalenes, a series of principally C₄ substituted tertiary naphthalenes, offer an arresting combination of properties. Note these:

VISCOSITY INDEX ranging from minus 225 to below minus 1,000, according to the viscosity level . . . indicates that alkylated naphthalenes thin out rapidly with rise in temperature and are outstanding lubricants when this property is desired.

OXIDATION STABILITY is excellent. Actual tests show them to be more than five times as stable as the best premium lubricants. They resist oxidation to a remarkable degree without added inhibitors, and couple this property with good natural thermal stability.

GASSING COEFFICIENT under high electric tension, is extremely low at minus 7.6 Pirelli—thus alkylated naphthalenes are safe for electrical applications where gassing is dangerous or objectionable.

Chief use at present is in variable speed drives, where their substitution for conventional oils doubles the horsepower rating of a given unit. They increase the power-transmitting efficiency of friction gearing to a remarkable degree yet without sacrifice of lubricating qualities for ordinary gears and bearings.

One of the alkylated naphthalenes may be helpful to you in other applications such as a liquid coolant and lubricant for friction brakes, as a heat transfer medium, as a viscosity index reducer, in electrical applications where thermal and oxidation stability requirements are critical, or as a base for highly oxidation-resistant fluid and grease lubricants.

Shell alkylated naphthalenes are available in experimental quantities. Test them for yourself. Typical properties of the two grades shown indicate present range of availability. If your requirement is for an intermediate grade, please indicate the viscosity or viscosity index range in which you are interested.

Typical properties of Shell Alkylated Naphthalenes

3, ,		
	SAN-10	SAN-1
Viscosity, Kinematic		
cs. at 100°F.	8,830	110
cs. at 210°F.	32	6
Viscosity, Saybolt		
SUS at 100°F.	41,500	511
SUS at 210°F.	150	46
Viscosity Index, D&D	-975	-225
Pour Point	+65	+10
Fire Point, C.O.C., °F.	445	335
Flash Point, C.O.C., °F.	410	300
Color, ASTM	3—	6

Dielectric Constant Dielectric Strength, KV Oxidation Stability (Dornte) Hours to absorb 100 ml. Oxygen per 100 gr. oil at 120°C. with Cu catalyst

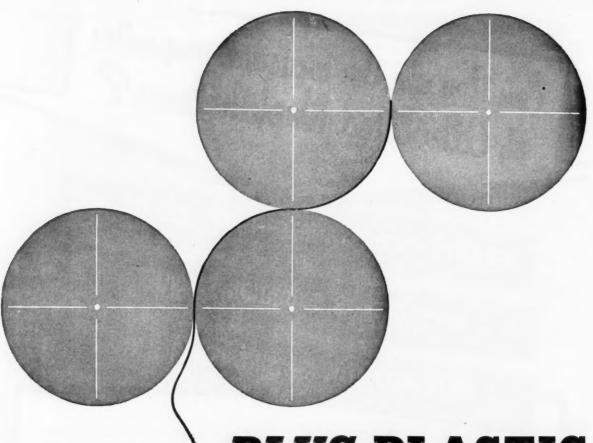
Solubility (In Petroleum HydroSAN-10 SAN-2.2 2.2 30 30 230+ 230

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Vinyl films containing 1 to 3% of Hercules Ethyl Cellulose are drier and less tacky, and have an appearance and feel approaching that of a textile fabric. Not only an excellent roll release agent, ethyl cellulose also imparts other desirable properties to finished film. Pigmented films have less gloss; clear films become more opalescent.

Used as an additive to other thermoplastics, ethyl cellulose gives them important new properties. Combined with low-cost fillers, it yields new economy materials which should open big new markets for the plastics industry. As a plastic molding material, it has long been recognized for its outstanding properties and serviceability.

Hercules will be glad to work with you toward the improvement of your plastic formulations or products with ethyl cellulose. For technical data, call or write:

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BUSINESS & INDUSTRY

Past the Mid-Point

With pharmaceutical companies making the best showing on speed of carrying out their part of the bargain, the chemical industry now has "in place" more than 51% of the expansion for which certificates of necessity had been issued by Defense Production Administration by last September (see accompanying chart).

In amount of actual construction and enlargement work done as of year-end, industrial inorganic companies ranked at the top with an aggregate of some \$360 million worth of new buildings and equipment.

For this year-end summary, DPA classified the companies according to their primary products—not by the projects for which certificates were issued. Three ciphers are omitted from each money figure; for example, amount certified for alkali and chlorine companies' expansion projects is \$313,466,000.

Total certification for all chemical companies issued as of last September: \$2,632,636,000. At year-end, value in place was about \$1,351,700,000.

Textile Move Looms

Anticipating the mass migration of some 900 of its employees in the textile and textile service departments to Charlotte, N.C., Celanese Corp. of America has made a series of preparatory moves.

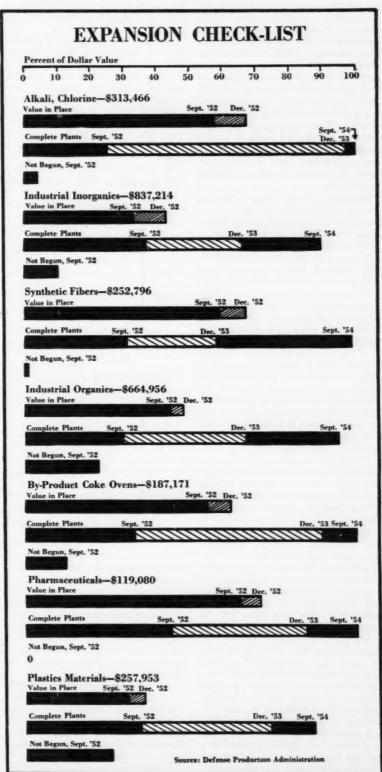
Called into a huddle to map out details was Chester Whelchel, former Charlotte Chamber of Commerce industrial representative, now slated to become the new office manager of the Charlotte branch.

Under construction, and scheduled for completion soon is an office building designed to house the dislocated textile department.

Credible reports circulating in the Charlotte area credit Celanese with picking up options on a total of over 600 acres of land outside the city as the initial step in acquiring a plant site nearby.

Real estate agents in Charlotte are being lined up to build housing facilities for workers in the area, the financing of which will be local.

Confirmation is unavailable this week as to which units in Celanese's textile department will be involved in the transfer, but indications point to the retention of the sales department in the N.Y. office.



Raiding Germany for Manpower

To fill their ever-growing need for technically trained personnel, U.S. chemical firms have taken a new tack—a direct attempt to raid the German chemical labor market of its talent.

Reaction among German companies and the German Chemical Industry Association has been increasingly agitated as the trend has gained momentum. Their hesitance, at this point, even to discuss the subject, would seem to indicate an extreme worry over any future drain, at any grade level, on Germany's pool of technical manpower.

Opposition Takes Shape: Thought on the matter among the larger German chemical firms, advertising in the same vein as have the U.S. "raiders," and maintaining large research staffs composed of highly trained specialists, has obviously been the most vocal and perturbed. Specifically:

• Discussions on the subject have been carried on with William A. Menne, president of the Chemical Industry Association, to determine ways and means to combat the trend.

Negotiations have been conducted with John J. McCloy, former U.S. High Commissioner for Germany, in an attempt to persuade American authorities to "go as easy as possible" so that the German economic revival and preparation for a future German contribution to Western defense be hindered as little as possible.

Further, it is reported that German CIA officials today feel quite strongly that any successful German defense program in itself becomes impossible if top German research experts are "exported."

Since, however, U.S. chemical firms are interested mainly in top-caliber specialists, and not in mediocre talent, it is obvious why it is that the biggest German corporations, employing such top talent, are the ones which are raising the hue and cry over the possibility that their employees will be hired away by foreign enticements.

On the same basis, it follows that small German firms have less of an ax to grind. They are usually not in any financial position to compete in maintaining large and expensive research staffs or programs, and are therefore less concerned with U.S. inroads.

Thus, major excitement, aroused by ads such as that run by Carlisle Chemical Works, Inc. (Reading, Ohio) in a leading German chemical publication, Chemische Industrie, has been centered among the top brass-the management of Germany's largest chemical firms.

Greasing the Path: Recent changes in U.S. immigration laws, effective Dec. 19, '52, have spurred interest in the idea of importing alien technicians, and considerably erased any difficulties involved.

Section 212 A 14 of the McCarran Act substantially broadened the contract labor provision of Section 3, Immigration Law, 1917. As it stands now:

• The McCarran Act authorizes a 50% set-aside in each nation's quota

of the 50%-of-quota idea, immigration authorities recently have been more and more lax on the subject of the entrance of foreigners into the U.S. under "temporary visit" arrangements. A German chemist, who for some reason may not want to reside permanently here, can get an extension of time (six months or a year) on his original one-year-or-longer permit by merely having the firm he works for verify his "importance to the country."

And finally, nothing in our present immigration laws prevents U.S. companies from signing on a prospective alien employee overseas. And con-

USA CHEMIEFORSCHUNG

Wir suchen einen in der organischen Chemie vielseitig erfahrenen Akademiker, der in unseren Laboratorien für interessante Forschungsarbeiten eingesetzt werden soll.

Bewerber bis zu 40 Jahren wollen sich unter ausführlicher Schilderung ihres Ausbildungsganges und unter Beifügung von Referenzen wenden an

CARLISLE CHEMICAL WORKS, INC.
READING (Ohio).

CARLISLE ADVERTISEMENT: Provoked excitement . . . mingled thought.

to be turned over for the use of people who will be "of economic or cultural benefit" to the U.S.

 Foreign engineers qualify under this provision and get priority treatment over any other class of aliens.

• U.S. firms requiring foreign specialists need only apply to the nearest office of the immigration and naturalization service to gain entrance requests for them.

• The office concerned gets details on the particular man requested through State Department channels.

 If the man is approved, the U.S. Consul in Germany is notified to add the man immediately—with priority to the O.K. list.

• Moreover, because of relaxation

versely, there are no German regulations or restrictions on the books today to prevent the emigration of Germans to the U.S., and therefore no bars applying to chemists' packing bag and baggage to seek employment here.

Climbing on the Bandwagon: Reaction in this country varies widely. There are those who offer ominous predictions of "sure trouble" and "we're not guilty" and there are others who volunteer open and frank admissions of the use of advertisement in Germany as one way of solving their manpower shortages.

Still others, like Carlisle Chemical, "do not have any comments to make" on their advertisement for technical help in European publications.



JOHN J. McCLOY: Asked to go "as easy as possible . . ."

A few, Du Pont for example, have recruited throughout European universities for a period of years, searching for chemical and chemical engineering students desirous of employment in the States.

Admission to being gun-shy on the subject has apparently most often been caused by criticism of the policy drifting up to management circles from sources unadvised as to the legal blessing bestowed by the McCarran Act.

Immigration authorities meanwhile await the rush to get on the gravy train, convinced that the lack of a clear understanding and an unawareness of the possibilities opened to American chemical manufacturers by the McCarran Act is the major hitch in the trend.

COMPANIES. . .

Davison Chemical Corp. has been advised by W. R. Grace & Co. that, as of Jan. 8, the latter company's beneficial ownership of Davison common stock has been increased to approximately 21.5%.

No change is reported, as of Jan. 8, in Grace's ownership of Davison Series A preferred stock—the holdings remain at 18.9%.

At the same time W. R. Grace stated that it "is unable to state whether or not we shall make an offer to acquire the assets of your corporation at some time in the future" and "we may or may not do so."

Diamond Alkali Co. has filed a registration statement with the SEC covering a proposed issue of \$15-million sinking fund debentures due in 1978.

Diamond plans to spend \$14,600,-000 in 1953 and 1954 for expansion.

The major portion of the proceeds of the issue will be available to the company for general corporate purposes, including the capital expenditures program.

A part of the proceeds will be used to retire 2% notes and \$5,800,000 of short-term bank loans.

Smith-Douglass Co., Norfolk, Va. and San Jacinto Chemical Corp., Houston, Tex. have entered into an agreement looking to a merger.

Detailed plans of the merger have yet to be explored before the transaction is consummated, but Smith-Douglass is to be the surviving corporation.

Since San Jacinto is a manufacturer of anhydrous ammonia and Smith-Douglass produces chemical fertilizers (and has recently acquired Coronet Phosphate Co., a producer of phosphate rock and defluorinated phosphate), the merger will integrate Smith-Douglass to the extent of producing both ammonia and phosphate rock.

Liquid Carbonic Corp. has reached an agreement for the acquisition of Bird Gas Corp., Detroit producer of oxygen and acetylene.

The transaction is on an exchangeof-stock basis and is subject to audit and final appraisal, but it is anticipated that the closing will take place within 30 days, with the exchange of 15,000 shares of Bird Gas stock for 37,500 shares of Liquid Carbonic.

Stockholders of Bird Cas have approved the move, and Liquid Carbonic stockholders previously had authorized an increase in common stock from 1,200,000 to 2 million no par shares.

U.S. Engineers have offered two World War II chemical manufacturing facilities at Sylacauga, Ala., for long-term lease. Proposals will be opened May 12, '53.

The facilities include: a nitric acid plant with a rated capacity of 304 tons/day; an organics plant, previously engaged in production of diphenylaniline.

Blaw-Knox Co. has set up a \$12 million credit with nine banks that will last until March 31, '54.

Previously it had taken \$9 million by selling notes due April 30, '54. Interest on this and future borrowings will come at ¼ of 1% above the prime rate, but never less than 3¼%.

Proceeds of the initial loan will help

Blaw-Knox retire \$15 million of shortterm debt outstanding under a credit agreement negotiated last March.

Union Carbide & Carbon Corp. is switching its top engineering man, George T. Felbeck, from atomic energy at Oak Ridge, Ky. to development work on Carbide's coal hydrogenation process at Institute, W.Va.

Carbide is said to be considering a \$100 million expansion program on the basis of good results from the \$11 million pilot plant now running.

EXPANSION. . .

Chlorine: Gulf Alkali Co. is purchasing 170 acres, southeast of Baytown, Texas, and 50 acres on Barker's Hill salt dome, 10 miles north of the plant site, as the initial step in construction of an electrolytic chlorine plant.

of an electrolytic chlorine plant.

Gulf Alkali, an affiliate of Intergulf Chemical and Supply Corp., New York City, received financial aid in the purchase from the parent company and a group of Texas business men.

Drugs: Smith, Kline and French, Inc. has awarded construction contracts for its proposed new drug distribution plants at Wilmington, Del. and Trenton, N.J.

Total cost of both structures is expected to exceed \$1 million.

Textiles: E. I. du Pont de Nemours and Co., Inc. will start construction on a new \$2 million textile fiber and weaving laboratory on a 160-acre tract near Wilmington, Del.

Phosphates: Davison Chemical Corp. expects to put its new \$12-million triple superphosphate plant, now under construction at Bartow, Fla., into production by early 1954.

Annual capacity will exceed 200,-000 tons.

Aluminum: Aluminum Co. of America's third Wenatchee potline is scheduled to begin operations about Feb. 1, with a fourth to follow soon after. The two potlines, which will produce about 85 million lbs. of aluminum at full production, never have been activated previously because of a power shortage now ended.

• Kaiser Aluminum & Chemical Corp. meanwhile has indicated that increased production facilities at its Tacoma, Wash. plant, accomplished last fall at a cost of close to \$3 million, will go into use by Feb. 15.

The reduction plant will have a capacity of 70 million lbs. of pig per year, an increase of 16 million lbs.

CHEMICAL STRIKES: HOW LONG DO THEY LAST?

Striking Union	1 to 6 days	l to 4 weeks	1 to 6 months	6 to 12 months	More than l year	Total
ICWU (AFL)	1	0.	3	1	0	5
Gas-Coke (CIO)	1	0	3	0	1	5
Dist. 50 (UMW)	0	2	0	0	0	2
Other AFL Unions	7	3	2	0	0	12
Other CIO Unions	2	3	5	0	0	10
Other Ind. Unions	0	2	0	0	0	2
	11	10	13	1	1	36

(Analysis of 36 strikes affecting chemical processing industries that started and ended during 1952. Not included: strikes at atomic energy and ordnance plants, oil refineries, coking works.)

Pickets vs. Profits

Although chemical plants generally rank high in industrial relations—much higher, for example, than such strife-ridden industries as mining, construction and textile milling—the chemical industry is faced with a rising incidence of strikes that, unless checked, could brake industrial growth and scare away new risk capital.

Portents of this danger are seen in these new statistics:

 A relative increase of about 50% in the chemical processing industries' share of all strikes in the U.S.

• An 80% increase in the average duration of work stoppages in the chemical processing industries.

 A loss of more than \$30 million worth of production last year because of chemical strikes.

Whether the trend will change this year is anybody's guess. With the defense program still providing impetus for industrial expansion and still contributing toward inflationary pressures, and with three lusty labor unions trying to organize as rapidly as possible, it appears that so far there's been no significant change in the economic factors that accompanied last year's record wave of chemical strikes.

More and Longer Strikes: During 1951, there were 67 work stoppages in plants making chemical and allied products; in just the first nine months of 1952, the Bureau of Labor Statistics counted 82. In 1951, about 20,000 chemical workers involved in strikes were idle an average of 10 days apiece; corresponding figures for the first three quarters of 1952 were 25,100 workers on strike an average of more than 18 days each.

Cost of the strikes can be estimated by using average productivity figures (CW, Dec. 27, '52). If value added by processing per man-hour is around \$7.50, then the 1951 strikes cut chemical production by more than \$12 million, and nearly \$28 million was lost through the first nine months of 1952.

In general, last year was the most strike-ravished year for American industry since the big readjustment year of 1946, with 34 of the nearly 5,000 work-stoppages involving 10,000 or more workers. Biggest of the nation-wide strikes were those of the 560,000 Steelworkers (seven weeks); 300,000 Mine Workers (bituminous coal, 12 days); and 58,000 Oil Workers (32 days). All of these affected much or all of the chemical processing industries, but of course were not counted as chemical strikes.

Cautious But Determined: Of the strikes at chemical plants, relatively few are waged by the three principal chemical unions: International Chemical Workers Union (AFL), United Gas, Coke & Chemical Workers (CIO), and District 50, United Mine Workers (Ind.).

However, figures compiled by CHEMICAL WEEK indicate that when those unions do decide to strike, they're likely to stay out a long time. Of 36 chemical strikes in the news during the past year, 67% of the strikes by those three unions lasted one month or more, while 71% of the strikes by other unions lasted less than one month.

Longest chemical strikes that ended last year were those of Gas-Coke at American Cyanamid's plant in Joliet, Ill., and ICWU at Johns-Manville's plant in Lompoc, Calif. The Joliet strike ran for an incredible 2½ years, while the Lompoc strike continued more than seven months. Longest strikes by other unions in the industry last year were both by the Oil Workers International Union (CIO), which maintained picket lines from April to

September at two plants, Carbide & Carbon Chemical, Whiting, Ind., and Lion Chemical, El Dorado, Ark.

Fury in the South: Possibly because labor unions are relatively newer and not so fully accepted in the South, that region had a corner on the violent strikes in the industry in 1952.

First such instance came last spring when shots were fired at pickets of the AFL Building Trades Council on the site for the Geigy Chemical plant at McIntosh, Ala. The AFL was trying to get the contractor to stop using non-union labor.

In August, the superintendent of Firestone's plant in Lake Charles, La., was pulled from his auto and beaten during a strike by the AFL Metal Trades Council. At issue: alleged wage classification inequities.

The following month, also in Louisiana, two still unsettled strikes began to pile up records of violence. At New Iberia, some 250 members of ICWU have been dropped by Jefferson Island Salt Co. in favor of some 200 "new hires," and law suits between union and company are pending in state and federal courts. There have been at least four dynamitings.

In the other Louisiana strike, automobiles have been dynamited, homes blasted with buckshot, a railroad bridge blown up, and a natural gas line destroyed. The AFL Papermakers and Sulfite Mill Workers are striking against two paper companies.

What's the remedy for the rise in strike frequency: a more restrictive labor law to make unions less rambunctious, a policy of basing wages on the cost of living through "escalator" clauses, profit-sharing plans, or a "Santa Claus" attitude on the part of employers?

It's worth big money for each company to find its own "right answer." There's not only peace of mind, but also profit protection, in labor contracts with "no strike" clauses.

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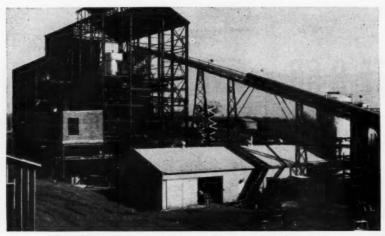
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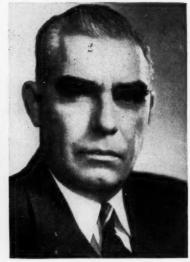
Tossing in its bid to be billed as "one of the fastest-growing organizations in the chemical field today" is Shea Chemical Corp., Baltimore, Md. Full operation of its 30,000 kw elemental phosphorus furnace, one of the world's largest, with a capacity of approximately 40 million pounds of white phosphorus annually (CW, Jan. '31) finalized a \$3½ million expansion program last week.

In one jump, it catapulted Shea from a minor producer of lime and limestone products to fourth place among the nation's seven top industrial phosphorus producers. (Monsanto, Westvaco, Victor, Shea, Virginia-Carolina, American Agricultural, Oldbury.)

Saleswise, Shea's growth has been

equally startling. The organization, an outgrowth of the old Hoosac Valley Lime Co., had only \$350,000 gross sales in 1949; \$1 million in '50; \$2 million in '51; \$3 million in '52; and prospects for '53 indicate total gross sales of over \$6 million. This would spell out close to a 20-fold increase within the space of four years.

Moreover, design and construction of Shea's new Columbia, Tenn., plants (furnace, dicalcium phosphate plant, and phosphoric acid oxidation plant) in less than a year probably constitutes a record-breaking performance for plants of this type and size. Design work was begun in Jan. '52; construction was undertaken April '52; initial equipment was installed May



SHEA: "Controlled diversification . . ."

'52; and production was rolling by Jan. '53.

Bucking the Tide: Construction steam-rollered past a series of hazards.

• Plans for the furnace were changed on a day-to-day basis—from an initial 8,000 kw furnace to a 20,000 kw unit while on the design boards, and redesigned to a 30,000 kw installation by changes even after the transformer was ordered.

 A steel strike in the spring of 1952 forced purchase of plant construction material wherever it could be found

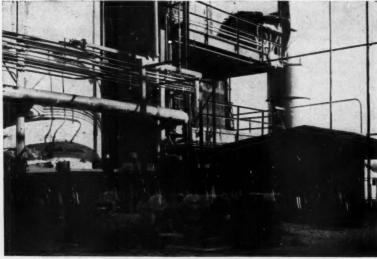
 IMC's strike early this year compelled Shea to initiate operation of its furnace with rock trucked in by private operators, dug from privately owned land nearby.

How It's Done: In most growth pictures, a pattern of controlled diversification is clearly visible.

• The low margin of profits and heavy competition in the limestone business (Hoosac Valley Lime səles grew very slowly from 1938 to 1950) caused forward-thinking President Vincent H. Shea to look for a diversification, using his limestone base. Dicalcium phosphate was the result of his market search. At this stage, he was forced to purchase elemental phosphorus, since he could not obtain phosphoric acid in New England at prices which enabled him to manufacture dicalcium phosphate profitably.

Inability to obtain phosphorus from the producers in desired quantities, plus faith in the needs of the feed industry, in turn resolved his thinking in terms of his own phosphorus

• Once launched, Shea officials licked the "it couldn't be done" atti-



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you're missing 1/2 of the market!

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Oronite can now offer you improved Alkane—the basic raw material used in making the highest quality synthetic detergents. Alkane is available at a consistent low price. In the past seven years, because of expanding production and improved technology, there have been many price decreases on Alkane. Thus Alkane assures you of a stable market price on your finished detergent product.

Our engineering service has a plant design to fit your needs. A large equipment investment may not be required to sulfonate your own detergents from Oronite Alkane—possibly a great amount of your present equipment can be utilized. (Alkane is available in assured supply from three strategically located bulk terminals.)

Our technical assistance is available to you free of charge. Equipment prices, performance data, yields and all other technical information to show you how to make detergents profitably can be furnished on request.

If you are interested in entering the detergent market, or wish to see how economically you can convert your own plant to detergents, address an inquiry to any Oronite office. We will have a qualified representative contact you.

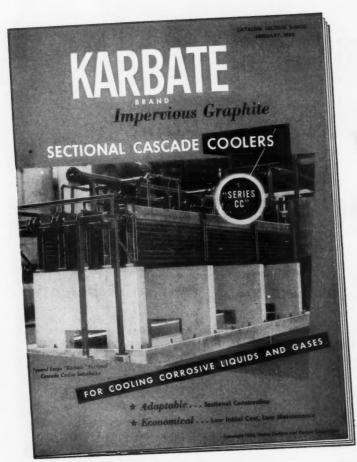


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For industry's toughest fluid conveying requirements. Easy to install and maintain with simple hand tools. Catalog Section S-7000.

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Accepted material for lining tanks, towers, digesters and other vessels containing corrosive chemicals. Catalog Section S-6210.

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"National" Graphite Ground Anodes for cathodic protection of buried or submerged metal structures. Catalog Section S-6510.

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For heating and agitating corrosive solutions by direct injection of steam. Catalog Section S-7300.

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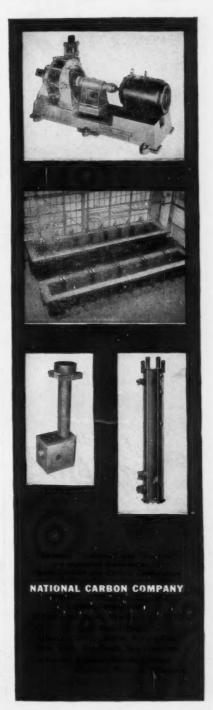
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Versatile, standard equipment for hydrogen chloride synthesis. Burns moist gases. Simple in operation. Catalog Section S-7530.

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BUSINESS & INDUSTRY . . .



LAKEY: "Grateful nod to TVA."



LUX: Wary of "nervous capital . . ."

tude by a willingness to adjust to changing conditions and growing demands. With a grateful nod to TVA, which helped in the preliminary design work and now supplies the power for the Tennessee works, R. J. Lakey, vice president and chief engineer, is already planning a second furnace of approximately the same capacity as the present facilities, to be used primarily for phosphorus chemicals which are presently in the development stage. (At present, sales are at a ratio of about two-thirds to the feed industry, one-third to other areas.)

• Looking ahead, John H. Lux, vice-president in charge of research and industrial sales, has several new products in the pilot-plant stage based on present raw materials which are expected to contribute heavily to Shea's sales even before the new furnace arrives. Future markets in organic derivitives alone offer a host of prospects—plasticizers, insecticides and lubricants among them.

What Looms Ahead: To avoid a pitfall—that of putting all its eggs in one basket (a modest estimate of the phosphorus industry's sales allot over 50% to detergent manufacturers alone)—Shea officials are carefully analyzing future moves. Moreover, complicated equipment in the phosphorus business makes switch-overs from one product to another time-consuming and costly.

In the field of expenditures of "nervous capital" (money invested in projects like insecticides, where costly outlay could be for naught if some cheaper product were found to substitute), their care is equally rigid.

At the same time, Shea's tendency

is always to stay away, so far as possible, from production of superphosphates—which would, of necessity, degrade the value of white phosphorus produced in the new Tennessee furnace.

Meanwhile, sales prospects for '53 boom, with output already 95% contracted for by the end of January. Such factors point to Shea as a producer of major importance in the rapidly expanding phosphorus chemical industry.

LABOR

CIO Gets Restless: Worried about the possibility that "a Taft-dominated Congress" might enact anti-union laws and also bring about a recession "or even a major depression," CIO leaders are prodding their members and organizers these days to get them to redouble their unionizing efforts.

• Pep talks galore are beamed at members of the United Gas, Coke & Chemical Workers (CIO) in the current issue of the union's periodical. President Elwood D. Swisher asks his 75,000 members (nearly all in the chemical processing industries) to bring in one new member apiece so the union will double in membership this year. And the vice-presidents for the various geographical districts plead for ratification of the proposed 25¢/month increase in per capita assessments.

• The Oil Workers International Union (CIO), with about 110,000 members in refineries and petrochemical plants, is seeking more participation from local unions in its next drive for "a greater share of the fruits



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BUSINESS & INDUSTRY.

of the industry." OWIU, big gun in the coalition of unions that staged the nation-wide oil strike last spring, says that "about 150 representatives from 24 local organizations" attended the first of a series of regional meetings for coalition members. The first meeting was in New York, last week; other coalition regional conferences are planned for the Gulf Coast in February, the Midwest in March, and probably the West Coast in April.

• President L. S. Buckmaster of the United Rubber Workers (CIO) is calling on the more than 300 URW locals to send representatives to sit as the union's policy committee March 13-14 in Cleveland to decide what to ask for in new contracts this year. Economic goals generally attained last year by URW included a 10¢/hour wage increase and tripletime pay for work on holidays.

Battles for Members: Labor unions seem to be bearing down harder than ever this year in their campaigns to enlist more members among chemical employees. As usual, the unions still expend much of their organizing zeal and money in taking members away from each other; Gas-Coke is chortling over its recent capture of the bargaining agency at the Carter Products plant in New Brunswick, N.J., from the International Chemical Workers Union (AFL). With a sneer that betokens little chance for cooperation between the two unions, Gas-Coke comments that the 102 to 15 vote "indicates how poorly the Carter workers thought of their former AFL affiliates."

• But ICWU isn't doing too badly in the way of organizing. It's celebrating its recent 731 to 496 victory over an employee association in an NLRB election at Du Pont's photo products plant in Parlin, N.J. The new ICWU local has more than 600 charter members. This makes the AFL union the bargaining agent at three Du Pont plants (including the explosives plant at Seneca, Ill., and the H-bomb plant at Aiken, S.C.), with the NLRB still pondering the disputed election at the neoprene plant in Louisville, Ky.

• At Du Pont's triune works in Buffalo, Gas-Coke is striving to win bargaining rights at two of the plants (Cel-O-Seal and Cellophane), while the International Association of Machinists (AFL) wants to represent employees at all three plants. The MLRB holds that the 430 workers in Cel-O-Seal and the 600 in cellophane should comprise one bargaining unit, and the 1,500 employees in the rayon

plant, now represented by the Buffalo Rayon Workers Independent Union, make up another.

• By a narrow margin, a leftist union has won a bargaining election at North American Cyanamid's plant at Niagara Falls, Ontario. The workers, who formerly belonged to an employees' association, voted 373 to 351 in favor of the United Electrical Workers, after having resisted previous organizing attempts by various AFL and CIO unions. UE, an independent union, was tossed out of the CIO in 1949 on the charge that it was Communist-controlled.

Less Risk, Less Ciphering: Favoring an assured and regular wage increment to the complications of "a fluctuating and unsatisfactory profit-sharing plan," Minneapolis employees of Minnesota Mining & Manufacturing have a new agreement that calls for a flat 4% wage increase instead of the profit sharing plan. Also an innovation in their contract: the company will pay all costs of the present insurance program.

 About 800 truck drivers staged a walkout that was recorded as the 60th strike at the atomic energy plant under construction at Paducah, Ky.

FOREIGN. . .

Polyvinyl Chloride/Austria: In 1953, a new plant for the manufacture of polyvinyl chloride will go into production at Hallein, Austria. The plant, partly financed with Marshall Plan aid, is expected to make Austria largely independent of imports.

Austrian annual requirements of polyvinyl chloride are listed at 1,500 tons, with the demand still rising.

Resins/Argentina: The Argentine Central Bank will not receive requests after Feb. 2, '53, for imports at official exchange rates of resins and resin products from Great Britain, Germany, Hungary, Austria, and Brazil.

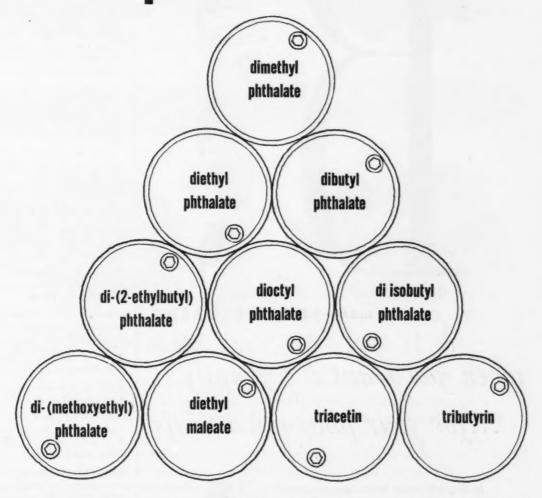
Fertilizers/Japan: The Japanese government has decided to suspend acceptance of applications (until the end of April) for permission to export nitrogenous fertilizers, including sulfate of ammonia and urea.

The decision was reached following a series of joint consultations between the International Trade and Industry Ministry and the Agricultural-Forestry Ministry.

Action was taken to curb any rise in prices prior to the appearance on the domestic market of spring fertilizers, and also because of the fact that no concrete decision has been reached



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on the export quota of fertilizers in the coming fiscal year.

Ammonium Nitrate/India: An ammonium nitrate and urea plant, and also a methanol plant will be built at the Sindri Fertilizer Factory, India. The plants, financed with American aid, will cost about \$9 million.

Bauxite/Australia: Australia's Minister of National Development has reported that bauxite, recently discovered in three sites in Arnhem Land in the Northern Territory, could insure supplies for several hundred years to Australia's first aluminum plant, now being installed in Tasmania.

Sugar/Greece: Plans for installation of a sugar factory in Salonika by three Greek-American industrialists are reported to be progressing satisfactor-

ily.

The factory will produce 80,000 tons/year of beet sugar, but in the first year most of the output will be from imported sugar cane.

KEY CHANGES. . .

John F. Shea: To general sales manager, Buffalo Electro-Chemical Co., Inc., Buffalo, N.Y.

Henry W. Collins: To board of directors, Archer-Daniels-Midland Co., Minneapolis, Minn.

Albert H. O'Neil: To assistant vicepresident, Freeport Sulphur Co., Freeport, Tex.

James T. Sheehy: To board of directors, Rayonier, Inc., New York, N.Y.

Clark E. Center: To vice-president, Carbide and Carbon Chemicals Co., New York, N.Y.

George P. MacNichol, Jr.: To executive vice-president, Libbey-Owens-Ford Glass Co., Toledo, O.

Ralph E. Knight: To vice-president and director of research and development, Kaiser Aluminum & Chemical Corp., Oakland, Calif.

Richard L. Bowditch and David L. Luke, Jr.: To directors, American Research and Development Corp., Boston, Mass.

Jasper P. Scott: To executive director, operations planning, Eli Lilly and Co., Indianapolis, Ind.

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target

Tumbleweed may stir the poet's spirit, but it's just a fire hazard to a railroader. It gathers under railroad trestles that act as windbreaks in open areas, provides kindling for costly fires.

How costly? Each year fires touched off by accumulated tumbleweed in Western states, grass and brush elsewhere, destroy about \$1 million worth of trestles, bridges and culverts. The loss resulting from traffic tie-ups is incalculable, but it is many times a million dollars.

That's why railroads individually—and collectively through the Association of American Railroads—are looking for a fire-resistant paint for these structures. The AAR has tested numerous products in its Chicago lab and at its proving grounds at Albuquerque, N.M. (see cut), gives this report: No material submitted to date has all the qualities AAR would like to see.

Miles-Long Market: For the company developing a product that fills the AAR bill, there's a hefty demand represented by some 10 million feet (over 1,900 miles) of creosote-preserved timber trestles in the U.S. Each track foot is supported on the average by timber with an exposed area of 55 sq ft of which at least 30 sq ft should receive a fire-resistant coating. That totals a minimum market of 330 million sq ft. And railroads will pay 25-35¢ per sq ft (about 2¢ of which goes for spraying) to have all that wood fireproofed.

These collective \$1 million-ayear fires are generally set off by hot brake-shoe slivers or by fusees (flares with weighted, spiked ends to stick in ties or ground) which brakemen throw out at the beginning of designated dangerous curves. Because all brakemen don't have a big leaguer's control, many a fusee fails to land point down. Burning at 3,300 F, the flare can easily ignite ties or brush.

And even though tossing fusees out on trestles or bridges is forbidden, a fusee landing in brush a few hundred yards from a curve, can start a fire that spreads along the right of way to the tinderous tumbleweed under a trestle.

Mixed Blessing: Creosote, used to preserve the timber (12-14 lbs per cu ft), compounds the fire

Damper on Trestle Fires

hazard. The creosote or creosotepetroleum tends to bleed out on the surface, and cause paint to slough off, particularly when its viscosity is lowered by heat of the sun or a fire. In the case of the latter, once the paint is gone, creosote volatiles feed the flames.

An obvious solution to this fire problem is to pre-treat timber against fire as well as against decay. Many chemicals which impart fire resistance to wood also render it rot-resistant, and they could be used to do both jobs. Moreover, 35-40% chlorinated paraffins in a creosote-petroleum solution give

minutes. Must maintain an insulation barrier so that an external temperature of 1,500-1,950 F won't cause creosote (distillation temperature: 350-365 F) to rupture coating.

 Adhesion. Must bond well to creosoted wood and resist bleeding of creosote.

• Application. Must be easily applicable with standard railroad equipment — ordinary pressure sprayers. (The more the material handles like paint, the better chance it has.) If base is a flammable solvent, paint must dry fast enough not to be a fire hazard



TRIAL BY FIRE: Retardant paints vs. tumbleweed and fusees.

fire-repressant properties to the mixture. But such treatments cost a lot more than creosote.

Nor can they prevent burnouts of creosoted installations already in place. And that's the railroads' main objective, since it might take 50 years to get a fireproof right of way by replacing burnouts with structures that will neither burn nor rot. Thus the roads are looking for fire-retardant coatings—formulations better than they've been able to find thus far.

Present coatings, says the AAR, are unsatisfactory because they fail to meet one or more of these rugged specifications:

 Weathering. Must be able to take sun and rain, high and low U.S. temperature extremes and abrasion by wind-blown dust.

• Fire. Must be able to withstand 25-second rise in temperature to 1,900 F, and hold under a flame of that temperature for 3-5 under conditions of normal railroad traffic.

• Cost. Railroads agree that cost, including application labor, can be as high as 25-35¢ per sq ft, but no higher.

Profit and Joy: In that 25-35¢ range, there's a multi-million dollar market for the manufacturer with a product that meets all the specs. Railroads now pay up to \$9 per gallon for materials that don't.

per gallon for materials that don't.

They'd like to hear from any company that thinks it has the product to do the job. A gallon sample sent to Association of American Railroads Engineer Seymour Coburn (3140 S. Federal St., Chicago 16, Ill.) will be put through its paces in the lab and in the field.

If Coburn finds the product he's looking for, he and all other rail-roaders may wax poetic not only about the long-sought coating, but even about tumbleweed.

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RESEARCH

Goal: A Name for Toughness

A tough new synthetic is Goodyear Tire and Rubber Co.'s contribution to the current volley of rubber developments.

It's a condensation polymer of adipic acid, ethylene and propylene glycols, stands up well to wear, oil, oxidation.

Brightest potential use: as a tough skin for tire treads. But bonding to other rubbers is not easy, could be a pitfall.

Open season on vital new developments in the rubber industry continues. This week, close on the heels of B. F. Goodrich's pipeline GR-S process (CW, Jan. 17) and U.S. Rubber's high-rosin synthetic (CW, Jan. 24) comes word of a completely new type of synthetic rubber. It's a dividend of Goodyear Tire and Rubber Co. research, made by reacting adipic acid with ethylene and propylene glycols.

So far the new Goodyear-developed material is nameless. But lack of a name is no handicap in physical tests

According to reports, tire treads of the new synthetic show two to five times greater wear-resistance than those made from the best cold GR-S. The new rubber is supposed to hold air like butyl, stand up to oil like neoprene. Its oxidation resistance is reputed to be superior to that of natural rubber and other synthetics. And tensile strength is said to be 50% to 100% over that of its closest competitor.

Goodyear says that laboratory tests spark the hope that tires made from its newest discovery will outwear the automobile they support. And, by the same token, the material's life-span in shoe soles and heels, conveyor belts and the like could be an eyebrow raiser.

Ahead of the German: Research leading to the tough synthetic began in Goodyear's Akron, Ohio, laboratories shortly after World War II. Ray Dinsmore, v.p. in charge of research and development, headed the work, points out the new synthetic's chemical resemblance to Vulcollan, the German synthetic, But, claims Dinsmore, Vulcollan takes a back seat where processing is concerned. And here's why:

Vulcollan requires special processing equipment; there's relatively little time to mold the German material before it solidifies to an unmanageable mass. Goodyear probers have found a way to brake the solidification, facilitate subsequent processing on con-

ventional rubber machinery. Key: Controlled addition of a di-isocyanate. The exacting dose of di-isocyanate cross-links the glycol-acid condensation polymer to a predetermined de-



GOODYEAR'S DINSMORE: With a diisocyanate, no need for special equipment.

gree, gives a material of the right consistency for processing in existing equipment. Vulcollan also contains a cross-linking di-isocyanate, but the Germans apparently never tumbled to the Goodyear trick.

Aside from processability, the Goodyear synthetic boasts other advantages over its German near-relative. Cost is not the least of these. It's less expensive than Vulcollan, but even on a commercial scale would still cost more than twice as much as American cold GR-S for tires. Internationally attractive features: Too tough to be strengthened appreciably by carbon black, the glycol-adipic rubber is, nevertheless, speedily vulcanized.

On the other side of the ledger, adhesion presents problems. The new nameless synthetic takes to metal well enough, but defies bonding to other rubbers. Since the material would, in all likelihood, be most useful as a

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tough, comparatively thin skin on tire treads, the adhesion-to-rubber headache assumes considerable significance

Prospects for its eventual solution. however, are bright. Dinsmore tells CHEMICAL WEEK that his researchers have the problem under attack, already were able to come up with some pretty decent results. The company's commercial development timetable for the new rubber would be a lot shorter if the only puzzle remaining was adhesion.

But that's not the only problem facing Goodyear researchers. Their work is cut out in improving their anonymous product's resilience and adhesion, paring process (covered by basic patents) costs, and developing practical processing techniques. And the procurement of the right di-isocyanates at reasonable cost is another not inconsequential stumbling block. At best, commercial production of Goodyear's new synthetic is years off.

Transistor Riddle

The transistor-heralded as the device which would usher in a new electronic age-was in the news again as Brown-Allen Chemicals (New York) reported the development of a new semiconductor suitable for transistor

The material, asserts Brown-Allen President John Ekblom, is cheaper, in better supply, and shows greater stability at temperatures over 70C than germanium. Up to now, germanium is one of the very few semiconductors with which engineers have been able to solve the difficult crystallographic and metallurgical problems of transistor production.

Transistors, like vacuum tubes, can control a large current with a smaller one, find use in compact electronic equipment of all sorts. Instruments containing Brown-Allen's crystal, asserts Ekblom, "may be in actual production in a little more than three months." Ekblom, however, isn't revealing the chemical identity of his crystal semiconductor, or whether planned production will be on the three-wire transistor or on the more easily engineered diode, which finds its main use in rectifying current, not in controlling it.

Germanium is one of a few materials that can be given a "lifetime" great enough for commercial transistor use. "Lifetime" is a measure not of operating life, but of the space possible between wires attached to the semiconductor crystal. Even in germanium crystals grown for transistor use, "lifetime" may vary widely; and transistor assembly using the best of these crystal sections must be done under magnification.

Aside from germanium, several transistor substances are known. Sili-

Protein Probe with a Molecular Twist

Despite its familiarity as food and fiber, the protein molecule is almost as much of a chemical puzzle today as it was two decades ago. It's made up of a number of amino acids joined by peptide links; that much is common knowledge. But how the amino acids are arranged, what form the protein polymer takes and how it participates in chemical reactions are largely unanswered questions.



COREY: A seven-strand sub-microscopic

The answers are the goals, of protein researchers probing such seemingly unrelated substances as viruses, wool and ACTH. Progress is being made. A long step forward is the justrevealed discovery, by California Institute of Technology's renowned team of Linus Pauling and Robert Corey, of the spatial configuration of several body proteins.

Two years ago, the pair capped 15 years of work with the finding that many protein molecules exist nor-mally as coils or spirals. Now, by means of X-ray studies, they have found that seven of these coiled molecules can be twisted into cables which form muscle, hair, fingernail and other body proteins.

Each cable, theoretically, consists of six long molecules, coiled around a central spiral molecule. According to Pauling and Corey, the six individual molecules are in the form of left-hand screws; but they take a right-hand twist in coiling around the, work of the Caltech pair has considercentral molecule. The entire set-up is analagous to a rope which can't unravel when cut or stretched. In the protein itself the spaces between individual cables are filled by two separate molecular coils.

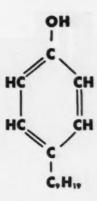
Don't try to find a practical application for the Pauling-Corey data right now. There isn't any. But the



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able long-term significance to all protein researchers. Its chief benefit, however, could accrue to the medics and biochemists. The Pauling-Corey methods and discoveries promise to tell a lot about abnormal proteins, unlock the door leading to the understanding and control of our most puzzling diseases.

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RESEARCH . . .

con crystals, for example, have been put to specific military transistor use despite the fact that silicon is harder to work than its germanium homolog. Four other materials which show promise for transistor usage are indium antimonide, gallium antimonide, gallium arsenide and lead telluride. Which, if indeed any, of these compounds is Brown-Allen's secret is anyone's guess. Almost as if he were posing a riddle, Ekblom says about the mystery substance: "In one form, its principal property is to change light into electric current. In another form it reveals great [electrical impulse] storage capacity or 'memory effect.'"

Brown-Allen, having filed patent applications, plans to offer the government first use of its discovery, wants, in return, financial aid for setting up production facilities. Any other needed financing will be privately arranged.

Drug Duo: Two new drugs are just out of Lederle Laboratories Div. (American Cyanamid Co.). Both are results of trail-blazing research in widely varying fields of biochemical investigation.

Half of the neophyte twosome is leucovorin, a synthetic counteragent to the toxicity of folic acid antagonists used in the treatment of leukemia. The compound, believed to be a metabolically active form of folic acid, apparently is identical with a racemic form of the citrovorum factor discovered two years ago (CW, Feb. 17, '51) at Alabama Polytech's Agricultural Experiment Station.

Biological and chemical studies of the citrovorum factor, also an antifolic antagonist, led researchers of Lederle and Cyanamid's Calco Chemical Div. to the new synthetic. It's prepared by the reduction and formylation of pteroylglutamic acid.

An anti-epileptic drug rounds out the new offerings. Dubbed Hibicon Benzchlorpropamide, it represents a new departure in the chemotherapeutic attack on epilepsy. A product of several years of research, the compound shows effective anticonvulsant activity in treating grand mal epilepsy (complete seizure) and less severe variations of the disease. According to Lederle: "It has been found effective in the treatment of patients who are resistant to . . . other anticonvulsants."

Keyed to Flow: A new type of flowmeter, said by National Bureau of Standards to be "capable of measuring the air currents in a still room or the



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- ¶ Preparation of products in finely divided and reactive states
- T Means of avoiding induction periods

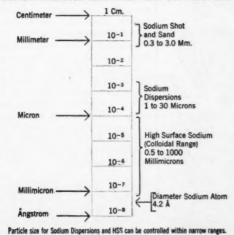
USES FOR HSS

- Purification of gases, hydrocarbons and ethers (to remove oxygen, nitrogen, halogen and sulfur compounds, moisture and certain trace amounts of other impurities).
- Preparation of Sodium Hydride and Sodamide for in situ use.
 Reduction of Metal Salts and Oxides to finely divided metals, e.g., Zn, Fe, Pb, Cu, Ti, Ni, Pt, etc.
 Catalyst for hydrocarbon cracking, polymerizations and
- rearrangement reactions.

APPARENT FILM THICKNESS VS. % Na IN HSS

% Na	Film Thickness on Alumina (Area—160 M²/g.)	Film Thickness on Colloidal Carbon (Area—750 M²/g.)
5%	1 Atomic Layer	<1 Atomic Layer
15%	Av. 2.5 Atoms Thick	<1 Atomic Layer
25%	Av. 5 Atoms Thick	Av. 1 Atom Thick

SODIUM PARTICLE SIZE AND FILM COMPARISONS



Send for our interesting new booklet — HIGH SURFACE SODIUM which gives the complete story on this important development in Sodium chemistry.

U. S. INDUSTRIAL CHEMICALS CO. 120 Broadway, New York 5, N. Y. I'm interested in HSS. Please send your new booklet. POSITION .. COMPANY .. ADDRESS .

> NOTE: We do not produce HIGH SURFACE SODIUM. Our product is Metallic Sodium from 1 lb. bricks to tank car quantities. However, our technical staff can demonstrate the simplicity of preparing and utilizing HSS in your own plant in available equipment.



Metallic Sodium is manufactured by National Distillers Chemical Co at Ashtabula, Ohio and sold by:

DUSTRIAL CHEMICALS CO.

Divisions of National Distillers Products Corporation Branches in all principal cities. 120 Broadway, New York 5, New York





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RESEARCH . .

rapid flow of fluids in pipes," has been developed by Bureau researchers. Unlike most mechanical devices for measuring velocity of liquid flow, the new NBS invention utilizes the change in speed of sound waves as a measure of fluid flow. Features: fast response; no obstruction of flow in the course of measuring; and ability to get down to extremely low velocities.

Plastic News: Federal Telecommunication Laboratories, Inc. chemists have developed a new heat-resistant, silicone plastic. It's made by blending a silicone resin with a filler and treating with triethanolamine. Fine-detail molding is made possible by the addition to the mix of strontium naphthenate.

Spreading Out: A new, two-story building is going up at Arthur D. Little, Inc.'s Cambridge, Mass., head-quarters. Scheduled for occupancy by the end of this year, the addition will—according to plans—house the company's "experimental operations in physics, chemical engineering, new-product development and production methods."

Evangelized: The long-term view of technical development gained another convert in Olin Industries Inc. In a major organizational shift, the cellophane and explosives-producing firm has set up a general research organization, named a quintet of managers to head its armament, petrochemical, organic chemical, new products and chemical engineering departments.

Function of the new research arm: study of fundamental, long-range and specialized problems. Above all, it will focus on scientific developments of company-wide significance, coordinate the activities of Olin's divisional research departments. Laboratories to accommodate the new group's 45 staffers have been established at New Haven, Conn., and Olin's East Alton, Ill., headquarters.

Pyrethrin Build-Up: Pyrethrum researcher F. B. La Forge of U.S. Department of Agriculture has recently completed the synthesis of cinerin I, the active cyclopentane portion of the pyrethrins. Key: resolution of the previously synthesized 2-(cts-2-butenyl) - hydroxy-3-methylcyclopenten-1-one into its d and l isomeric forms. All four optical isomers of cinerin I have been synthesized by acylation of d- and l-cinerolone with the d and l forms of trans-chrysanthemic acid.

Relative Benefits: Taking their cue

IF YOU ARE A
USER OF
50% CAUSTIC SODA

WOULD YOU
INVEST \$2,120 IF
IT COULD SAVE YOU
\$20,979

IN FIVE YEARS?



THIS CUSTOMER DID BY SIMPLY SWITCHING TO 73% CONCENTRATION

This is an actual case of a bleach manufacturer located in the south. It is by no means an exceptional experience. Naturally, the volume of caustic soda consumed determines the savings realized in switching from 50% to 73% concentration.

In 1952, this bleach manufacturer purchased 630 anhydrous tons of Columbia-Southern 73% caustic which cost \$45,246.60 delivered.

If this customer had continued to buy the 50% liquor, it would have cost \$49,442.40. A savings of \$4,195.80 was realized the first year. In five years this amounts to \$20,979.00. And of course the savings do not stop at the end of five years; they go on and on.

The total cost of equipment and installation necessary to effect these savings ran \$2,120. We believe it will pay you as it did this customer to seriously investigate switching from 50% to 73%.

The unloading method used with 73% is a compact unit that combines unloading and diluting in a single operation.

Columbia-Southern's technical staff will be glad to make recommendations regarding the cost and location of this unit. Also, they will help you with the unloading of the initial shipment.

Write our Pittsburgh office to determine if your plant location offers you this opportunity for potential savings.

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Start an evaluation program today, to plan for your production tomorrow!

Emery Pelargonic Acid

This unique acid is a mixture of saturated, monobasic liquid acids, predominantly C9 pelargonic acid. Its esters have widespread use as vinyl plasticizers and synthetic lubricants. As a fatty modifier for non-drying alkyd resins, the saturated structure of Emery Pelargonic Acid results in excellent color-retention properties.

The solubility and surface activity of the acid itself have proved very effective in the flotation of various minerals.

Emery Azelaic Acid

A 9-carbon, saturated dibasic solid, Emery Azelaic Acid undergoes all reactions typical of dibasic acids, including esterification and condensation with glycols and diamines. Diesters of Azelaic Acid have widespread use as plasticizers for vinyls, cellulosics and synthetic rubbers, and as synthetic lubricants.

Azelaic Acid is used also as a modifier of alkyd resins to produce "soft" alkyds.

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RESEARCH

from the recently revealed structure of the antibiotic, actithiazic acid, researchers of Chas. Pfizer & Co. have made three types of related compounds, tested them for germ-killing activity. They are: 2-substituted-4thiazolidones; carboxyl derivatives and ring-substituted analogs of the former. Actithiazic acid is 2-(5-carboxypentyl)-4-thiazolidone. Result: many test compounds showed greater antibacterial activity than the antibiotic itself.

Of potential commercial importance. the Pfizer work is still purely experimental.

Academic Activity: Universities are in the forefront of the attack on two puzzling health problems.

If University of Chicago researchers' experiments with atomic rag-weed are successful, hay fever sufferers could eventually thank radioactive carbon-14 for relief from distressing symptoms of the disease. The isotope is going into radioactive carbon dioxide which is being used as the atmosphere for experimental ragweed plants. Result: "hot" carbon dioxide is taken up by the plants' leaves, built right into the pollen.

The tagged pollens produced in this way could be injected into laboratory animals or sniffed (in innocuous amounts) by human volunteers. Object of the study is to find out just what happens to the irritating allergen when it comes into contact with the hay fever victim's mucous mem-

At New Haven, Conn., two Yale University psychologists apparently have disproved a growing belief that bad diet is a major factor in alcoholism. Their tests were made with rats, but results-says Yale-"are all the more startling because they [arise from] a simple extension of tests made in numerous other research laboratories . . . " Previous tests have shown that if rats were given a choice between water and alcohol, they would choose water on a good diet, alcohol on a bad.

The Yale researchers, Leon A. Greenberg and David Lester, believed the evidence was insufficient for binding conclusions. They set up their own experiment, introduced a third choice-sugar water-to supplement the previous two (water and alcohol). Result: Rats on bad diets, who had been imbibing alcohol, gave it up for the sugar solution; even those which were accustomed to taking large amounts of alcohol went over to sugar water. Saccharine and fats also drew the rats away from alcohol, but not as readily as did sugar solutions.



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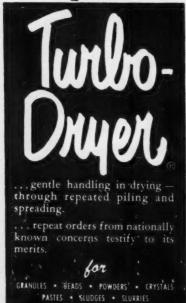
MOORE & MUNGER

Booklet reveals possibilities of fatty alcohols

Coming off the presses this week is a new booklet describing how cetyl, oleyl, and stearyl alcohols are used today in the chemical processing industries. The wide range of applications listed is remarkable: as absorption bases, adherents, anti-foams, emollients, emulsifiers, lubricants, pene-trants, plasticizers, softeners, solubilizers, stabilizers, synergists, thickeners. And as intermediates for aldehydes, brominates, chlorinates, condensates, esters, mercaptans, nitrites, phosphates, sulfates, sulfonates! Besides discussing profitable uses for fatty alcohols, this interesting booklet beats the drum somewhat for CACHALOT brand. Just write M. Michel and Company, Inc., 90 Broad Street, New York 4, N. Y. Their registered trade name for the largest variety of fatty alcohols commercially available in tonnage lots of controlled purity is

Cachalot.





WYSSMONT

Booklet reveals | PRODUCTION.



BAGGING: Converting wastes to . . .



TESTING: . . . useful products is the . . .



DRYING . . . slicke

Silk Purses from Sow's Ears

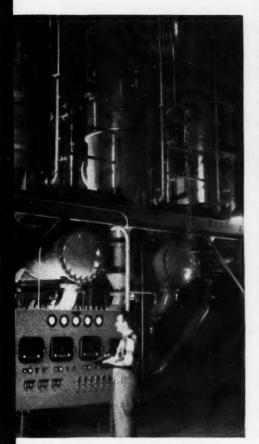
The slickest way of solving the pollution problem is to convert the objectionable material to something useful, then sell it. And though that's easier said than done in most cases, some companies have attained a modicum of success with just that sort of reasoning. Marathon Corp. (Rothschild, Wis.), has had, for 15 years, a Chemical Division that uses as raw material the spent sulphite liquor from the firm's pulping operations.

Making the proposition pay was an uphill struggle most of the dictance. The history of the Chemical Division, in fact, was written in red ink until 1945. But it was in the black that year, has been paying its own way ever since. And this week, Marathon is adding another chapter to the book: Having just completed a half-million-dollar expansion of facilities, the

Chemical Division reports that demand for its products now outstrip its raw material and it is buying spent liquor from another pulper.

New facilities consist of 13 large process tanks and four major pieces of equipment. Included in this is a spray drier—the largest ever built by the Western Precipitation Corp. The net effect will be to boost Marathon's output of lignosulfonate powders by 15 million lbs. a year. Total annual production will then be 39 million lbs. of powders and 36 million lbs. of solids as liquid products.

Three Stages: The basic building block for Marathon's Chemical Division is lignosulfonic acid found in the spent liquor. It had long been known that the acid could be precipitated as the calcium salt by treatment with lime. Marathon, however, was the



to lick polution and make money too.

. At a Profit

first to prescribe the exact amounts of lime in its patented (U.S.P. 1,699,845; 1,856,558), three-stage precipitation. In the first stage, lime is added until the pH rises to 10.5. That brings down calcium sulfite which can be used in preparing cooking acid. Most of the sulfonic acid precipitates in the second stage when the pH is raised to 12.

The remaining liquor is then treated with an excess of lime to remove more lignin. That plus the excess lime can be employed in the first stage. The mother liquor contains degradation products with a low biochemical demand for oxygen. It causes no pollution problems when released to the stream.

Earliest use for the calcium lignosulfonate was in the production of vanillin. Marathon dissolves the salt News about

B. F. Goodrich Chemical raw materials

INTRODUCING –

2 new thickening agents

Good-rite K-707

Good-rite K-710

THESE new Good-rite materials are water-white solutions of high molecular weight acrylic polymers. They are stable and uniform and are not subject to bacterial degradation. Good-rite K-707 and Good-rite K-710 are efficient thickeners for a wide variety of water dispersions including natural and synthetic latices. The table below gives you the complete listing of properties.

PR	OPERTIES	
	Good-rite K-707	Good-rite K-710
Composition	NH4 salt of high mol. wt. polyacrylic acid.	Na salt of high mol. wt. polyacrylic acid.
Total Solids	15%	15%
рН	7-8	8-10
Color	water white	water white
Clarity	clear to slight haze	clear to slight haze
Specific Gravity	1.06	1.12
Density (Ibs./gal.)	8.81	9.28
Viscosity (78°F, Brookfield model #LVF at 12 RPM, spindle number 3)	6000-12000 cps.	5000-10000 cps.

Write for technical bulletin giving helpful data on thickening of various latices, including natural rubber, GR-S, nitrile and vinyl.

Or if these two materials do not appear to meet your requirements for water-soluble polymers, send us specifications of what you need. Possibly other of our hydrophilic polymers will solve your problems. Please address Dept. E-2, B. F. Gobdrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

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GEON polyvinyl materials • HYCAR American rubber • GOOD-RITE chemicals and plasticizers • HARMON organic colors

EL DORADO OIL WORKS

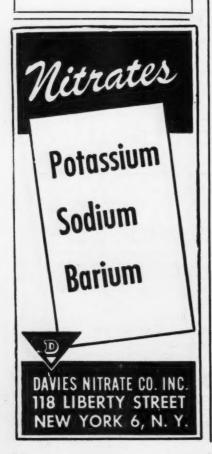
announces with pleasure the appointment effective February 1, of

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as exclusive sales agent for fatty acids and derivatives in

New York, New Jersey, Pennsylvania, Maryland and Delaware



PRODUCTION

in caustic and pipes it to Salvo Chemical Co. (Rothschild, Wis.), a subsidiary of Sterling Drug Co., where it's oxidized to the vanillate. Even today, points out Marathon, Salvo produces over 50% of the vanillin consumed in the U.S. with a process developed jointly by Salvo and Marathon and from liquor purchased from Marathon.

Building the Market: A number of lignin compounds have joined vanillin in finding a market in industry since the calcium salt can be modified in many ways. Calcium itself can be replaced with sodium, potassium, magnesium, ammonium, aluminum, zinc, copper, chromium or iron. The basic structure of all these can be altered by changing temperature, pressure, pH, degree of oxidation or other vari-

With the new facilities, Marathon looks forward to a 50% boost in gross sales for the Chemical Division by 1954. Most of this increase is expected to come from present markets, but Marathon says it will have enough left over to explore new uses. Here's a brief rundown on how Marathon expects the market will shape up:

· Dispersants. The big claims for lignin compounds as dispersants are their powerful action and low cost. Dispersants have been the biggest part of the Chemical Division's business and Marathon expects they will continue so.

Oil-well drilling muds are a major end use. They use Marasperse CK calcium lignosulfonate to control fluidity, also to stabilize emulsified-oil muds against electrolytes or jetting and churning encountered in drilling operations. Another dispersant, Marasperse CE, is designed for use in stabilizing emulsions in the presence of saturated brines.

Marathon figures the immediate potential for its dispersants in drilling muds at 20 million lbs., thinks eventually they might take 40 million lbs. of the estimated 60-million-lbs. market for organic drilling mud dispersants.

A partially desulfonated sodium lignosulfonate (Marasperse CB) finds its way as a dispersant into carbon black for the production of black masterbatch for synthetic tires. Controlled desulfonation renders the material insoluble in acid so the carbon black dispersion and GRS latex will coprecipitate with acid to form an intimate, uniform mixture.

Other uses for lignosulfonate dispersants: in pigment (insoluble), dyes to prevent flocculation of the finely ground particles; in insecticides, to eliminate agglomeration of clay and insecticide particles and retard settling out: in metal cleaners, to prevent redeposition of dirt and to allow dirtfree rinsing.

· Water treatment, batteries. Marathon claims that almost all of the water treatment compounds manufacturers in this country and in Canada use Maracell E in their formulations to prevent scale formation.

Likewise, it says, a majority of the batteries produced in the U.S. employ Maracell C partially desulfonated sodium lignosulfonate as an expander

in the negative plates.

· Leather tanning: In this field, Marathon sodium lignosulfonate can compete with vegetable tans as a leveling agent. It's an established use, but one which Marathon thinks will grow rapidly.

Experiments indicate lignin derivatives may pan out in other fields too, says Marathon: as a stabilizer for emulsions of wax or asphalt in water; in electroplating baths and phosphatizing compounds; on paper manufacture for cleaning pitch from rolls and screens; in grinding Portland cement clinkers and in gypsum board manufacture. In ore benefication (especially non-metallic), lignosulfonate dispersants are being used in flotation circuits. Other varied industries such as wallpaper and ceramic ware are starting to use specific lignin deriva-

Changing Problems: Since the inception of the Chemical Division in 1937, Marathon has spent \$1.75 million on plant and equipment, \$2 million on research. It started off with a waste disposal problem, figures that has long since been solved. It's now faced with the happier problem of finding more "wastes" to use as raw material.

Cleveland's Showcase

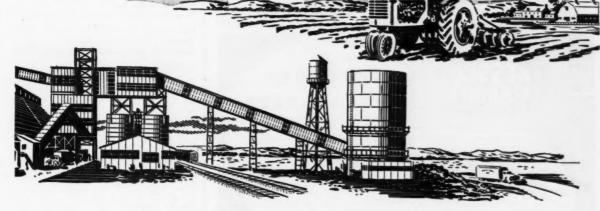
Cleveland played host to the Plant Maintenance Show last week, drew a large number of spectators and participants. Individuals came with ideas; companies with their latest wares. One of the main foci of interest for those in the chemical industry was Round Table #12 on maintenance, highlighted by Stuart Whitehead's talk on "Maintenance in Chemical

Maintenance Superintendent Whitehead, of Calco Chemical, discussed preventive maintenance, organization, and the need for maintenance departments augmented by technical men from design, research, and production. He concluded that the de-

Plants.'

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February 7, 1953 . Chemical Week



Most every enterprise from time to time gains much from the expert, unbiased viewpoint. We have the scientific personnel and equipment with cumulative experience to relieve your overload or to serve as your own research division. We save you from the expense of Permanent personnel and costly equipment for temporary and changing problems.

costry equipment for temporary and changing problems.
There's an interesting booklet awaiting your request. It describes the activities on each of our ten floors in according chemical services to science and industry. May we send you a copy? Address Dept. RLM.

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- 8. MARKET RESEARCH CHEMICAL MARKET REPORT
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- 6. ELASTOMERS, RUBBER PACKAGE ENGINEERING
- 5. WAX, PAINT and VARNISH COLLOIDS, ENGINEERING
- 4. MICROBIOLOGY, TOXICOL-OGY, CLINICAL EVALUATION
- 3. PLASTOMERS, PHYSICAL TESTING, FOOD, ORGANO-LEPTIC EVALUATION
- 2. RADIO CHEMISTRY
- 1. PILOT PLANT

Baimbridge, N. Y.
RATS FOR RESEARCH and
VITAMIN ASSAYS



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PRODUCTION . . .

centralized field organization and centralized shops would be the best set-up to maintain the medium-size chemical plant.

Others—interested in new products as well as new ideas—were amply rewarded by the many displays set up by the different companies to show off their latest productive efforts.

• Kollman Manufacturing Co. (Erie, Pa.) came forth with a new portable unit for opening clogged industrial or sanitary drains.

 New York's Tennessee Eastman Co. displayed its latest transparent plastic tubing for compressed air message transmitters.

• G. H. Tennant Co. (Minneapolis) showed an industrial floor sweeping machine which pulverizes refuse before sweeping it into a vacuum. The machine is said to be capable of clearing 15,000 square feet of floor space an hour.

On display by Pittsburgh's Velocity Power Tool Co. was a pistol-type acetylene torch which is ignited and shut off by trigger action.

• Clipper Manufacturing Co. (Kansas City, Mo.) featured a saw with a diamond blade said to be capable of sawing concrete.

 Cleveland's Oster Manufacturing Co. demonstrated its portable pipe threading machine for threading pipes from one-quarter to two inches in diameter.

 Thomas A. Edison, Inc. (West Orange, N.J.) introduced an industrial dictation system which has a central recording machine for phones located at different points in a plant.

• Pittsburgh's Mine Safety Appliances Co. brought forth an FM communication system for use in industrial plants. Claimed to be capable of two-way communication with ten different points over a one-mile range, it doesn't require a FCC license because it uses existing electrical wiring.

 Durable Mat Co. (Norwalk, Ohio) displayed rubber dock bumpers designed to prevent damage by being nailed to wooden truck or train loading docks, welded to steel or fastened to concrete.

Cleveland's Stahl Metal Products, Inc. presented its "shopmobile" which may be moved by hand or towed by an industrial truck to trouble spots.

• Frigidaire (Dayton, Ohio) division of General Motors Corp. came out with a new industrial ice cube freezer. Designed to do away with the trouble needed to get crushed ice, the freezer features a special grid capable of making cubes so thin they may be flaked or crushed by hand.

PRODUCTION . . .



COVERALL MODEL: In marine, or blue and white striped ticking.

Fashions for the Plant

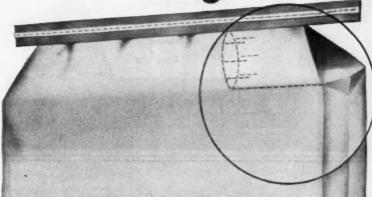
That aura of sweet femininity which has been sadly (or happily) lacking in your chemical plant will flourish there this year if Tina Leser (dress designer) and a group of twenty dress manufacturers have their way. Soberly calling themselves Fashions For Industry (FFI), last month, with equal sobriety, they staged a fashion show in New York's Waldorf-Astoria at which they previewed their ideas on what the well-dressed woman in the plant will wear.

Just as there'll always be an adman, there'll always be someone with a new angle on feminine attire. Though you've never considered a female operator as a potential clothes-horse on the job, Miss Leser and her back-

They are, for example, introducing coveralls, smocks and acid-proof garments for chemical workers. What's more, says FFI, these have been given "the same smart lines, attractive colorings and pattern variety that go into high-fashion sportswear, yet still meet the regulations of defense and industrial plants."

As an all-purpose garment, FFI is putting out a "one-piece, action-back coverall with easy, low-placed 'contour' waistband, zippered front, neatThe newest, best multiwall bags for valve-packing your fertilizer...

Bemis B-FLEX Valve Bags!



You should switch to Bemis B-FLEX promptly because of . .

- 1. LOWER BAG COSTS. You'll save up to \$4 per thousand compared with conventional inner-sleeve valve bags.
- 2. LOWER PRODUCTION COSTS. Faster handling on your packing machines.
- 3. FASTER PACKING. Are jam-ups a problem? Not with Bemis B-FLEX. No flapping inner-sleeve to slow down material flow.
- 4. UNIFORM WEIGHTS. You can hit your weights "right on the button." Stop over-packing.
- 5. CLEAN PACKAGE. Minimum sifting.
- 6. BETTER CUSTOMER SATISFACTION. No loose, torn sleeves.

And, of course, you get the added benefit of Bemis' crisp, bright, multi-color printing — the finest printing your brand can have on multiwall bags.

Ask your Bemis Man for the complete B-FLEX story.

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PRODUCTION . . .

ly tapered trouser legs and lipstickred collar, made in marine blue cotton gabardine, or in blue and white striped ticking, and given a pretty-yet safe-hair-covering cap of matching red." For chemical workers, of course, "the coverall is made in regulation, acid-resistant white nylon and orlon with a turban of the same fabric."

Also Functional: Described as "definitely gay but still functional," are the "bright red and white cotton leotards* to go under new push-up slacks and easy zippered jackets of cotton gabardine." Most of the Leser-styled slacks, FFI adds, "stop above the ankle, cling to the calf and push up around the knee." The clear-cut advantages of this type garment become evident with FFI's parenthetical explanation that "many plants require hosing the floor several times a

Nor has Miss Leser missed a single bet. For the smartly decked out plant worker who brings her own lunch there's a "cafeteria handbag" that will "banish the lunch pail." This is a "smart leather or basket-straw shoulder bag with a neat compartment holding a plastic thermos and space for lunch."

EQUIPMENT .

Cutting with Flame: Vernon Tool Co., Ltd. (Alhambra, Calif.) is introduc-ing its Vernon Universal flame cutter, a tool designed for reworking, reconditioning and salvaging pipe fittings. Vernon claims the flame cutter can cut ells to any angle, shorten ells, tees, flanges reducers and other fittings, can also re-cut and bevel used ells, tees, swedges and returns.

Conveyor: Developed by the U.S. Spring & Bumper Co., Chainveyor, a new overhead conveyor will be marketed by Mathew Conveyor Co. (Ellwood City, Pa.).

Welding Helmet: United States Safety Service Co. (Kansas City, Mo.) is bringing out a new welding helmet, made of glass fiber. Greater strength, says the firm, will mean longer life, lower welding costs. Called the Saf-I-Weld, it's adjustable to any head

Double-Header: Last week, Velan Engineering Co. (Montreal and Jersey City) introduced a self-tightening valve for high-temperature and -pressure service and Rotodrain, a rotating

*A leotard is defined by Webster as a short, close-fitting sleeveless garment worn by acrobats and aerial performers. FFI says "both leotards and narrow slacks are borrowed from ballet dancers who must be agile and comfortable. too."

PRODUCTION . . .

steam joint with integral drainage control.

Infrared Meter: General Electric Co. (Schenectady) has just introduced the Type DW-69 infrared meter designed to measure radiant-energy intensities up to 10 watts per square inch.

Sprouting: The Foxboro Co. (Foxboro, Mass.), manufacturer of measurement and control instruments, recently opened a branch office in Wichita, Kan.

Flow Data: Newly available from the Permutit Co. (New York) is a table of flow data for fluids through plasticlined, plastic, and light-wall steel pipes.

Imported: From Bamag of West Germany comes a new type, high-pressure steam generator. The unit, which operates at a temperature of 700 F and has a closed circulation of steam and condensate, will be handled by the General Industrial Development Corp. of New York.

Flowmeter: Koerting Co. (Cornwells Heights, Pa.) has just come out with a small, low-cost flowmeter for measurement and manual control of fluid flow in small quantities.

Redesigned: A revolving turret to speed color control is now featured in the recently redesigned Fisher/Tag Saybolt Chromometer marketed by the Fisher Scientific Co. (Pittsburgh).

Mixer: Developed by Standard Electric Mfg. Co., Inc. (West Berlin, N.J.), a new portable ½ hp gear head mixer is specially designed for mixing viscous liquids or large quantities of less viscous liquids.

"Butterfly Valve": The Keystone Tool Corp. (Houston, Tex.) claims that its new valve will speed operation when used on liquid, sludge or dry material pipe lines. The valve has a design feature that permits use of any combination of interchangeable end connections.

Opening: F. J. Stokes Machine Co. just opened a new laboratory in Philadelphia. Purpose: to provide complete facilities for testing and developing materials, equipment and processes for customers.

Appointed: Florida Metals, Inc. (Jacksonville) was recently appointed as a distributor of industrial tube fittings and tube fabricating tools made by the Parker Appliance Co. (Cleveland).



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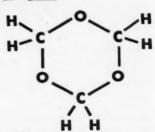
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- electroplating bath constituent
- air deodorizer component
- tanning agent raw material

†Meets U.S. Army Specifications

PHYSICAL PROPERTIES

Molecular Weight90.08
Melting Point, °C62
Boiling Point, °C
Vapor Pressure, mm Hg. @ 25°C13
Specific Gravity, molten, 65/20°C, 1.17
Flash Point, Tag open cup, °F113
Heat of Combustion, Kcal/g.@23°C,3.96
Appearance Colorless crystals
OdorEther-alcohol

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DISTRIBUTION

The Traffic Department's Role

"A well-run industrial traffic department can be an important factor in lowering production costs and in increasing sales. It can help widen company markets. Its analysis of transportation and distribution costs may open up new sources of raw materials. It can be a material factor in building up customer goodwill."

With these words, Union Carbide and Carbon's Traffic Manager Frank Tighe summarized the role of a chemical company's traffic department in his speech last week before the Compressed Gas Association (see below).

Tracing the development of his

profession back to the early years of this century, Tighe noted that America's industrialization created "an enormous flow of manufactured commodities for U.S. and world markets . . . Competition between rival producers resulted in closer scrutiny of production costs . . Producers came to recognize that a commodity was not 'produced' until it entered into the possession of the ultimate consumer, and that the costs of assembling raw materials and transporting finished products were just as much a part of production costs as the outlay for manufacturing.

"It soon became apparent that

the supervision of transportation services demanded the constant attention of a specialist. Thus, the traffic manager took his place in business organization beside the production manager, the sales manager, the director of purchases, the comptroller, and the treasurer.

"In many industrial concerns transportation is the third largest item of expenditure. Raw materials come first; labor, second; and transportation costs, third. In many respects, buying transportation services is the most complicated purchasing activity. Traffic men are, therefore, skilled specialists who can save you money and headaches—if you use and understand the services they have to offer."

Regulations for Hazardous Gases

Under the twinkling lights of the Waldorf-Astoria's Starlight Roof, members of the Compressed Gas Association met last Tuesday morning for an all-inclusive symposium on their industry's transportation problems. It was the second Technical Session of CGA's 40th annual meeting.

That the association should devote so much of its time to transportation is significant: In solving the problems of getting its products to market, the compressed-gas industry finds itself repeatedly involved with various regulatory statutes. It was certainly appropriate, therefore, that four out of the five symposium speakers should be representatives of national, state, and city governmental bodies. The fifth, Frank Tighe of Union Carbide and Carbon, devoted his remarks (see box, above) to the economic values of transportation itself. Acting as moderator for the discussions was Donald Ward, Mathieson Chemical's director of Transportation.

Uniformity Keynote: Because the regulations of the Interstate Commerce Commission are the foundation stone for all other government regulations, the first speaker aptly was E. G. Cox, chief of ICC's Safety Section, Bureau of Motor Carriers. Surveying the generally little-understood relationship between the bureau and the "private carriers"—companies which transport commodities in their own privately owned trucks and trailers—Cox traced ICC's jurisdiction back to Congress' request in 1935 for "reasonable requirements to promote safety



CGA PANEL*: Compliments for sincere self-policing.

of operation" by private carriers—"if the need therefor was found."

By 1940 the commission decided that it had found such a need. It ordered the private truck operators to comply with all of the general safety regulations then in effect for common and contract carriers (except for the filing of reports).

In 1943, the commission also ex-

tended to private truckers the regulations which had been imposed on common carriers as the result of the Transportation of Explosives Act. This move is now being questioned by the CGA and one other industry group. The reason: there is room for doubt that ICC can use the 1935 "general safety" act as an excuse for imposing the specific "explosives and other dangerous articles" rulings created by the later common-carrier law.

But Cox was quick to point out that the commission's relationships with compressed gas and other industries

*Left to right: Captain J. T. Stanley, U.S. Coast Guard; F. C. Tighe, Union Carbide and Carbon; D. G. Ward, Mathieson Chemical; C. G. Krueger, State of N.J.; James Collins, New York Port Authority; E. G. Cox, Interstate Commerce Commission.

have been more than satisfactory. "It has been our long-established practice to encourage compliance without resorting to drastic enforcement measures," said he. But because there are so many private carriers (ICC's partial list carries 30,000 companies and individuals), it is largely up to in-dustry, itself, to keep up to date on the newer regulations. Among these, Cox mentioned the new requirements for periodic examination of drivers and stronger standards for equipment.

Disaster Cues: Moving from the national to the state level, George Krueger of New Jersey's Department of Labor and Industry underlined that virtually all of his state's regulatory moves came as the direct result of local disasters. The "Black Tom" explosion was one of the earliest, and the South Amboy blast provided the

latest impetus.

Krueger remarked that New Jersey tries to keep its laws in conformity with the basic framework of ICC regulations. Following up Cox's remark that ICC's enforcement group contains only 18 men to cover the whole country, Krueger opined that state organizations like his own, following ICC-type rules, act as effective local

deputies for the Commission itself.

One added feature, however, is that New Jersey also extends responsibility for safety compliances to the shipper, warehouse owner, and any other person-in addition to the trucker-who plays a part in the movement of dangerous commodities.

In the Tunnels: There is, however, one major set of rulings which vary from the norm established by ICC. This is the series of regulations covering the movement of dangerous commodities through the vehicular tunnels around New York City. These rulings are promulgated by the Port of New York Authority, and that organization's Safety Supervisor, Roy Peterson, explained them in detail.

Fire-fighting and disaster control within these long tunnels is so difficult and hazardous that special restrictions are mandatory. In fact, even ICC recognizes this local problem to the extent of including in its own regulations a clause that allows the Authority's ruling to supersede ICC's.

"Surely where hundreds of people and vehicles are in a one-way confined space and fire-fighting activities must be conducted under limited conditions," said Peterson, "public safety must be placed above convenience.

Besides, "there is no Port Authority restriction on the movement of compressed gases over its bridges-other than the requirement that such materials be acceptable for interstate transportation and conform with ICC regulations."

Like the other speakers, Peterson ended his address with an optimistic note: "I think it is fair to compliment the CGA and the compressed gas industry in its sincere self-policing activities and in developing substantial and safe transportation containers for

compressed gases."

This was also the sentiment of Captain John Stanley of the U.S. Coast Guard. While surveying the regulations covering ocean and inland-waterway transport, Stanley commented that "we can do much more toward promoting safety in transportation by working together to promulgate sound regulations designed to provide the maximum protection without placing an undue cost on the transportation of these hazardous commodities."

* Home sick with the flu, his speech was presented by the Authority's James Collins.



Long Truck on a Long Mountain Haul

THE CHEMICAL TRANSPORT CO. of Billings and Great Falls, Montana, lays claim to the title of "First in the Northwest," so far as the long-distance hauling of chemicals is concerned. Organized by John S. Rice of Rice Truck Lines, the company specializes in carrying muriatic acid over the mountains from production points in Oregon and Washington to oil-well acidizers in Montana and Wyoming.

To do this, the firm has to span some Western-sized distances. Longest one-way trip: 1,200 miles. Yet it takes the company's Rocky-climbing prime mover only three days to accomplish the round trip to destination and back. Such fast turn-abouts are a big asset. Moreover, the truck delivers directly to the oil-well sites.

The muriatic is carried in a \$10,000 rubber-lined 40foot tank trailer with a capacity of 4,200 gallons. In the picture above, it is being loaded at Penn Salt's Portland, Ore., acid plant. Chemical Transport's next objective: to find another chemical-going west-which can utilize the truck on its return trip.

Hooker Chemical Guide (ONE OF A SERIES)

USE this handy reference to save time in selecting high-quality chemicals.

HOOKER SOLVENTS

MONOCHLOROBENZENE

Synonym: Phenyl Chloride Formula: C₆H₅Cl Molecular Weight: 112.5 Appearance: Clear, colorless liquid

TYPICAL PROPERTIES

USES

INSECTICIDAL INTERMEDIATE: DDT and other insecticides.
DYESTUFF INTERMEDIATE: Sulfur black and brown dyes.
CHEMICAL INTERMEDIATE: Organic synthesis.
SOLVENT: Paints, varnishes, lacquers, paint removers; general

HEAT TRANSFER FLUID: Suggested for condensing vapor sys-tems, such as glass-enameled vessel jackets, which cannot stand high steam pressures.

CYCLOHEXANOL

Synonym: Hexohydrophenol Formula: CsH; OH Molecular Weight: 100.1 Appearance: Viscous, colorless liquid with pleasant, aromatic odor.



TYPICAL PROPERTIES

Freezing Range High Grade
Boiling Point 18* to 22° C
Specific Gravity, 25°/15.5° C 0.945
Flash Point 67° C

161.7° C

USES

SES
SOLVENT: For resins, metallic soaps, dyes, fats and oils.
SOLVENT: For resins, metallic soaps, dyes, fats and oils.

dry cleaning opents.

HOMOGENIZING AGENT: For locquers, varnishes and paints.
floor waxes, degreasing of leather, labeling the creams, also a plasticizer and ingredient of adhesives, and a chemical intermediate in organic synthesis.

MONOCHLOROTOLUENE

Synonym: Methylchlorobenzene
Formula: CH3C4H4Cl
Molecular Weight: 126.5
Appearance: Clear, colorless
to straw-celored liquid,

TYPICAL PROPERTIES

Freezing Point
Freezing Point
Distillation Range

Specific Gravity, 15.5° 15.5° C

1.080

USES

SOLVENT: Rubber and synthetic resins.
INTERMEDIATE: Manufacture of rubber accelerators, chemicals.

METHYL CYCLOHEXANOL

Synonym: Hexahydrocresol Formula: CH₃C₆H₁₀OH Molecular Weight: 114.1 Appearance: Light straw-colored, neutral, viscous liquid.



TYPICAL PROPERTIES

USES

SOLVENT: For cellulose acetate, nitrocellulose and other cellulose esters for lacquers and coating compositions. ANTI-OXIDANT: In lubricants.
BLENDING AGENT: For special textile scaps and detergents.

TRICHLOROBENZENE, Tech.

Formula: C₆H₃Cl₃ Molecular Weight: 181.5 Appearance: Clear, almost colorless liquid



TYPICAL PROPERTIES

USES

INSECTICIDE: Soil poison for termites. INSECTICIDE: Soil poison for termities.
SOLVENT: Fats, alls, waxes, resint; crystallization solvent.
HEAT TRANSFER MEDIUM: Condensing vapor systems, 210° to 300° C.
DIELECTRIC FLUID: Transformers.
INTERMEDIATE: Dye Intermediates, other organic chemicals.

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U.S.A. TALY WORKERS HANDLE SIMILAR JORS BUT PATTERN OF LIFE AWAY FROM PLANT SHOWS WIDE DIFFERENCES.





PLASTICS Discrator Burt Gumm, left, loads nylon plastics at Polydum's Washington Works, it's competitor to Gumm plant has similar job and often equivalent of accidence. He now works a 48-or 52-hour week to help meet problems of reconstruction. It is wages are the equivalent of 43 to 48 cents parkney, but food cests take up to a third of his budget. Operator Gumm budgets 25 per cent of income for food.

Crystal Clear

Between now and June 12 of this year, President Dwight Eisenhower's new administration will be forced to take a stand on international trade. Reason: The 1951 extension of the Trade Agreements Act expires on that date. For the chemical industry, it will be a decision of historic importance. And this month, in its internal house organ Better Living, the industry's largest producer-Du Pont-explicitly explains to its workers the effect foreign competition has on them and their jobs. 'A vigorous competitor now hawks his wares again in the world's chemical markets," the article reports. "He is the bustling European manufacturer, seeking old customers and new dollars . . . Du Pont men and women from Arlington, N.J., to Victoria, Texas, now feel the impact of revived production abroad."

Better Living is a Life-like picture magazine which goes to nearly 150,000 readers, half of whom are Du Pont employees. The balance are mainly interested individuals in the many communities where the company has production facilities. These towns and cities, too, have a stake in the outcome of Du Pont's effort to meet the foreign competitive threats.

Personal Level: Commencing with a broad coverage of the reviving level of chemical production overseas (in plants rebuilt "partially with Marshall Plan funds"), the article focuses its attention on personal "competitors" by matching Du Pont workers with their foreign counterparts.

In addition to the pictures reproduced here (left), the magazine contrasts a Seaford, Del. nylon plant tester (Nita Conaway) with her British competitor, who "earns the equivalent of less than \$20 a week, not even half of Nita's wage." Also included among the subjects are a senior laboratory assistant at Du Pont's Experimental Station (with his Swiss counterpart) and a perfume worker at the New Brunswick Works who is competing with a Frenchman.

U.S. Distributor: Fallek Products Co., Inc. (New York), is now distributor for fatty alcohols produced by Dehydag, Deutsche Hydrierwerke A. G., West Germany.

Alginate Outlet: In another U.S. agency move, the Norwegian firm of A. S. Dramen has selected Croda, Inc. (New York), as its distributor of alginate products.



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part of your business

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McGRAW-HILL PUBLICATIONS





The Sante Fe's "Chlef" and "Super Chief" operate under conditions of high speed and excessive heat. Electric motors develop such heat that ordinary insulation would swell or burst and cause the rotors to "freeze" in the mounting. By impregnating these rotors with protective resins under high vacuum in Stokes Impregnators, each turn of wire is held rigidly in place and the motors operate without interruption. Vacuum impregnation also helps in making lace and rugs, metal castings and electrical parts, abrasive wheels and oil-less bearings, water-proofed paper and cloth, and many other common products. Send for descriptive and illustrated brochure on "Vacuum Impregnation."



Every woman can now adorn herself with costume iewelry-and handsome pieces, too—at very low cost. By metallizing the surface under high vacuum, low-cost metal and plastic pieces take on the glistening brilliance of silver, gold or rhodium. No buffing or finishing operations are necessary. Stokes Vacuum Metallizers are used to give this brilliant metallic finish to hundreds of automotive and electrical appliance parts. Beauty and salability are enhanced. Many industrial products—capacitors, reflectors, lenses, instruments, to name a few-again functional value by vacuum metallizing. We shall be gold to send an interesting and informative brockure. "Vacuum Metallizing Today."



Many airplanes of the future will take advantage of the high strength-weight ratio of titanium. It is a plentiful metal, spurns most corrosives which affect other metals, and endures extraordinary heat. Unfortunately, during some stages of production titanium has an incorrigible affinity for other elements... It wants to be anything but pure titanium. Part of the processing of ore to metal must therefore be carried out in vacuum. Stoke Vacuum Furnaces are designed for this purpose. Zirconium and hafnium are other metals long known to science as laboratory curiosities but of little practical value because they could not be smelted or refined to practical purity. Now they become useful as scientists process them under conditions of high vacuum.



Why is the sailor so happy? A grievous injury to his leg, which until recently, would have demanded amputation, was repaired with human bone preserved by freeze-drying under vacuum. After physical and medical herapy the sailor will walls normally again. The process of preserving human bone in this way for storage in the tissue bank is carried out in Stokes Freeze-Drying equipment. The new technique was developed by staff officers at the U. S. Naval Medical Center, Bethed, Maryland, in collaboration with members of the Stokes organization. Freeze-drying in vacuum is also essential to the preservation of blood plasma and some biologicals, and to the presparation of many of today? "wonder drugs," including ACTH and cortisone. Sea for an informative booklet on "Yacuum Freeze-Drying."

Is there a vacuum in your business ... or should there be?

Many industries use vacuum now. Many more need vacuum to develop new or better products, or to improve current methods.

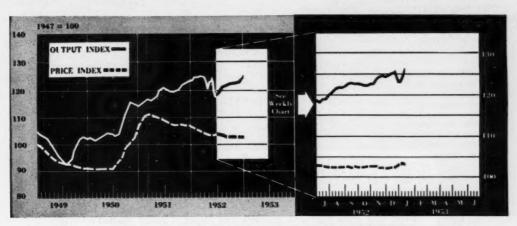
For vacuum engineering, consult Stokes, pioneers in the manufacture of vacuum equipment. Stokes has played a major part in vacuum from the first commercial processing of blood plasma to the modern vacuum processing of metals.

Stokes techniques of building vacuum processing equipment for production in commercial quantities have been developed during fifty years in vacuum engineering. Stokes is FIRST in vacuum.

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MARKETS



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

Rubber continues to boil up as a news-making item in the U.S. and in the world's market places. Reports that a subcommittee of the International Rubber Study Group has approved a plan to stabilize the price of natural rubber over synthetic came as somewhat of a surprise to outside observers.

Failure of other price stabilization progams, e.g., tin, has caused some rubber people to take a dim view of the recommendation that will be presented at a meeting of world rubber producers and consumers in Copenhagen in May.

If—and it's a big if—such a program is put into effect, current schedules (natural, 28¢/pound, synthetic, 23¢/pound, N.Y.) are bound to bounce to higher levels.

Straining U.S. need for rubber is further evidenced by the RFC's reactivation of an additional copolymer line at the Institute, W. Va., synthetic rubber plant. By the end of February the unit is expected to turn out an additional 3,500 long tons of "hot" GR-S.

Two recently reactivated alcohol units at the RFC plant at Kobuta, Pa., already are producing butadiene; two others at Louisville, Ky., (CW Market Letter, Jan. 31), should be in operation within the next couple of weeks.

On the other hand, a shutdown grabs the spotlight in the metals market. St. Joseph Lead Company is getting ready to close one of the two lead furnaces at its smelter (Herculaneum, Mo.). Reason: not enough "feed" (ore, concentrates, etc.) coming from the mines to keep both furnaces in operation.

The idle equipment will mean some 4,000-5,000 tons less a month on the refined lead market; could conceivably bolster the somewhat shaky 14¢/pound domestic lead price.

Lagging demand and foreign pressure ganged up to tumble zinc tags last week. The $\frac{1}{2} \frac{e}{p}$ pound cut (to $12 \frac{e}{E}$. St. Louis basis) is attributed to shy galvanizing customers and to price drops on the London Metal Exchange.

This is the second decline in zinc schedules since U.S. consumers

MARKET LETTER-

WEEKLY BUSINESS INDICATORS		Latest Week	Pre	ceding V	Veek Year	Age
CHEMICAL WEEK Output Index (1947=100)		126.7		126.2		24.9
CHEMICAL WEEK Wholesale Price Index (1947=100)		. 1,530.0		1,593.0		70.0
Bituminous Coal Production (daily average, 1,000 tons)		103.0		103.1		04.3
Steel Ingot Production (1,000 tons) Stock Price Index of 14 Chemical Companies (Standard & Poor	's Corp.	2,154.0		259.5		39.0
		EXPORTS			IMPORTS	
	Latest Month	Preceding Month	Year Ago	Latest	Preceding Month	Year Ago
Chemicals, total	\$58.3	\$61.7	\$90.1	\$17.7	\$21.0	\$20.5
Coal tar products	3.1	3.8	7.8	2.9	3.3	6.8
Medicinals and pharmaceuticals	15.5	17.2	24.5	0.4	0.7	0.6
Industrial chemicals	9.5	9.7	15.2	4.3	4.6	5.3
Fertilizer and fertilizer materials	2.8	3.4	5.8	8.5	10.5	6.7
Vegetable Oils and fats, inedible	3.6	2.5	8.6	8.0	6.8	8.7

were handed that unexpected hike to 13¢/pound when free trading was resumed in Britain early in January (CW Market Letter, Jan. 10).

Zinc and lead pigment makers are hopeful paint manufacturers will move briskly in their preparations for the upcoming spring painting season, but it's a question whether or not this potential demand will keep zinc oxide tags firm in the face of reduced metal prices.

Zinc dust, however, is feeling the influence of the weakened slab schedules. A $\frac{1}{2}$ ¢/pound reduction last week has the dust in a $15\frac{1}{4}$ ¢- $16\frac{1}{4}$ ¢/pound range—with no guarantee of firmness.

And the pesticides market, too, is still rift by pressures, though of a competitive nature. Lindane is the latest to follow the downward trend of bugkiller prices. Technical 99% material is now available to dealers at \$4.50-\$4.75¢/pound—25% formulation at about \$2.10/pound in drums (all prices f.o.b. works).

Carnauba wax buyers, reluctant to shell out for recent sharp advances had sellers cutting schedules $2\phi/lb$. last week in an effort to woo back business. Consumer reaction at the moment, however, is reported as unresponsive.

New quotes for No. 3: NC crude \$1.05-\$1.07/pound; refined, \$1.08-\$1.10/pound on spot, depending on quantity.

In Washington this week a decelerating NPA will write finis to a once impressive list of products requiring allocation authorization. Thiokol, last of the chemicals under "controls" (Schedule 5 to NPA Order M-45), will probably be dropped within the next two-three weeks.

There seems to be enough Thiokol available to satisfy both military and civilian requirements—a prime requisite for "decontrol"—but though the release order is written, top echelon in Washington have not as yet approved the dropping action.

Increased supply of the liquid polymers has pegged the price to consumers at about 96¢/pound.

While acetone supplies are in balance with current demand, some makers are predicting an upsurge in consumption during the next few months. Reason for the moot optimism: mounting defense need for the solvent.

SELECTED CHEMICAL MARKET PRICE CHANGES-Week Ending February 2, 1953

DOWN					
	Change	New Price			New Price
Lindane, 99% Tech, Dealers drums, works	\$1.25	\$4.50	Isonicotinic acid, 100-lb. fiber drums, works	\$2.00	\$8.00
Zinc metal, slab. E. St. Louis	.005	.12	Carnauba wax, NC, No. 3 crude, bgs., ton lots	.02	1.05

All prices per pound unless quantity is stated.

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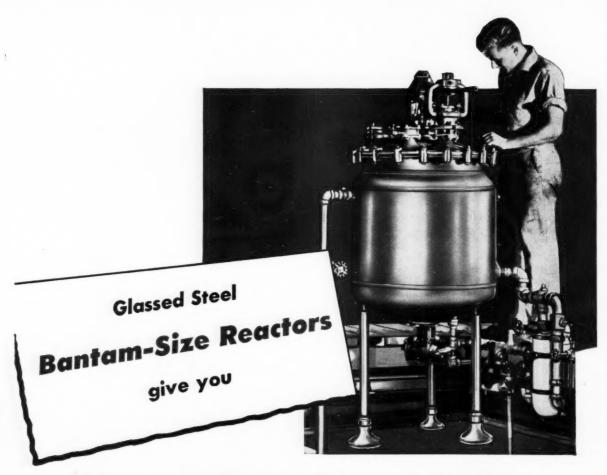


MIALE CARBONATE OF POTASH MIALE PARADICHLOROBENZENE

MALK CAUSTIC SODA NIALK TRICHLORethylene

VIAGATHAL (TETRACHLORO PHTHALIC ANHYDRIDE





the corrosion resistance of glass plus the working strength of steel

Pfaudler bantam-size "P" Series reactors make possible the transfer of a process from the laboratory to the pilot plant to full-scale production under parallel operating conditions. They are also widely used for processing small batches of rare or expensive products where purity is a prime consideration.

Built in standard capacities of 5, 10, 20, 30, 50, and 100 gallons, "P" Series reactors incorporate the same design features and have the same type of agitation as larger Pfaudler vessels. Depending on size, they are suitable for internal pressures from 25 to 35 p.s.i. and for jacket pressures from 75 to 110 p.s.i. Higher pressures are possible with special designs.

Glassed steel vessels for severe chemical service are built in capacities as large as 8300 gallons and are supplemented by a complete line of glassed steel pipe, fittings, and valves.

* Glassed steel is resistant to all acids except hydrofluoric, even at elevated temperatures and pressures. With a new Pfaudler glass, it is possible to process not only with acids but also with alkaline solutions up to a pH of 12 and 212°F.

To give it working strength, Pfaudler glass is fused to steel in huge furnaces at temperatures of 1500-1700 °F. This high temperature firing locks the glass to the steel and makes it hard and tough.

Write for Bulletin 894-P-4, our new general catalog on chemical processing equipment.

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Enough to Go Around

With capacity now double that of 1951, phosphorus furnaces can spew out over 300,000 tons annually.

Lagging product development, slower-growing outlets, more wet-process competition betoken increased sales resistance.

Outlook: A two- or three-year scramble to sell. Supply-demand balance will likely ensue.

Phosphorus sales managers, who two years ago were crying for more product to sell, may well change their tune before long. For in the past 24 months, elemental phosphorus capacity has almost exactly doubled (for latest addition, see p. 20).

As each new phosphorus furnace switch is flipped on, the switch from a seller's to a buyer's market approaches ever nearer.

From 1951 until last fall, 70,000

tons had been clicked on. At the latter time (CW, Aug. 2, '52), best opinion had it that the additions would serve the commendable purpose of easing the wear and tear on furnaces, give production men a breather to operate at a comfortable 90% or so capacity.

But in the past few months, phosphorus producers have stepped up capacity an additional 40,000 annual tons, pushing total furnace rating to a record 310,000 tons. That's a formidable pile of phosphorus.

With the latest on-stream operations, the sum of U.S. capacity now stacks up like this. ed to 15,000 tons. Now they must either (1) sell 11 times as much or (2) convert more into phosphoric acid.

Selling that much phosphorus for non-acid use would indeed be quite a feat. Right now, research and development men are fascinated by such organic phosphate compounds as:

insecticides and miticides surface-active and flotation agents textile antistatic agents lubricant additives antifoams anti-oxidants

But the catch is, the entire sum of these uses still takes only a comparative nibble of phosphorus. Pinned down to cold figures, phosphorus men, while toying with these possibilities, aren't predicting a total phosphorus consumption from all of them in excess of 10,000 tons annually for several years at least.

Meanwhile, the furnaces have been built and the current turned on.

More Acid: It would appear, then,

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NEW PHOSPHORUS CAPACITY: fast build-up.

Producer	te.						(C	0	n	ıl	00	ır	Y	Capacity (Tons)
Monsanto Chemical															110,000
Victor Chemical															73,000
Westvaco Div. of Foo	bo	M	a	ch	13	7.									41,000
TVA															36,000
Shea Chemical															20,000
Virginia-Carolina															14,000
American Agriculture	al														8,000
Oldbury Electro-Cher	nic	al	١.												8,000
Total Annual	Co	m	70	-											310 000

This line-up means one thing: An increasingly important problem in the phopshorus industry for the next couple of years will be sales.

Part of the trouble is, although phosphorus salesmen ostensibly have a host of prospects, the big volume outlets narrow down to a mere handful; the heftiest markets for elemental phosphorus derivatives must be shared with the wet-process phosphoric acid producers.

And the wet-process makers have done, and are doing, a bit of expanding on their own (CW, Jan. 31). Moreover, they're moving into fields hitherto considered reserved for the exclusive use of the elemental phosphorus makers (CW, Oct. 4, '52).

Phosphorus salesmen have been selling about 10% of the total phosphorus ouput in the form of organic and other non-phosphoric acid derivatives. Back in 1951, that amount-

that until new markets for non-acid phosphorus are developed, the present outlets will continue to bear the burden of about 90% of elemental output, as has been the case heretofore. With a capacity of 310,000 tons of the element now available, a flood of phosphoric acid totaling 860,000 tons (100% basis) could be loosed. The comparable 1951 figure, before all these additional furnaces were turned on, was 455,000 tons.

Last year, moreover, the wet-processors ran neck-and-neck with the furnace acid output. What's more, some of them are giving the furnace men a fight on their own ground.

More Purity: The contest for the feed-grade dicalcium phosphate market is a prime example of these battles. To add interest to this particular tussle, it looks as though there may not be room for everybody for a few years, at least.

And this is why: an authoritative estimate for 1955 dicalcium phosphate consumption runs about 270,-000 tons. With that benchmark, a projection of capacity and needs looks

though, the business is highly competitive with the wet processors, who by and large have enjoyed a cost ad-

Best chance for furnace phosphorus is probably in the West, where wet-

chlorine which existed at the time and the fact that the Chemical Corps plants at Denver, Pine Bluff, Huntsville and Edgewood were producing to support the civilian economy, it did not appear logical," explained Gen. Black, "to effect recapture action on several of these facilities to meet the new Chemical Corps chlorine requirements."

The Corps took the alternative of building new capacity. Erected at Muscle Shoals, Ala., the new plant went into test operation in June last

Present plans call for half-capacity operation, beginning this coming June. "The relatively small tonnage of chlorine which the Corps will require in the interim period will be procured from the industrial market," said Black.

Under the present world situation, the Chemical Corps will take about half the Muscle Shoals plant capacity. Any firm decision as to future operation will be based on the relative economic advantage of half-capacity production as compared with purchasing chlorine from the industrial market. Procurement program for this year totals 16,000 tons, which will be produced in Chemical Corps plants.

Mobilization Plans: According to Gen. Black, the Chemical Corps industrial mobilization planning requirements have been cut considerably. Latest schedule calls for 612,000 tons for the period M (mobilization day) plus 36 months. On a yearly basis this means that, for the three years after mobilization, the Corps would need an average of 204,000 tons per year.

To fill this demand, most of the chlorine would be supplied from Chemical Corps plants, balance from the industry.

The over-all line-up: from existing Government plants, 163,000 tons per year; from private industry, 41,000.

In closing his talk, Gen. Black gave the Chlorine Institute assurance of Chemical Corps co-operation: "It is the full intention of the Chemical Corps," he concluded, "to do all in its power to work with the chlorine industry in performing our national defense mission. We wish to keep you apprised of our developments and to rely on your advice and judgment in matters pertaining to the chlorine pic-

"It is gratifying to know that we have a group with the competence and interest of the Chlorine Institute. I trust this organization will continue to serve as the vital link in a strong Chemical Corps chain for national defense.

Feed-Grade Dicalcium Phosphate

(Tons per	year)		
	1951	1953	1955
Capacity			
furnace	45,000	195,000	195,000
wet-process	_	50,000	155,000
gelatin by-product	15,000	15,000	15,000
Total	60,000	260,000	365,000
Consumption	50,000	120,000	270,000
Excess capacity	10,000	140,000	95,000

Even in this fast-growing field, production can easily outrun sales for some time to come.

Poly Pillar: In the last analysis then, if phosphorus makers can't count on (1) newly developed lines, such as organics or (2) animal feed supplements, they'll have to continue to battle for their share of that mainstay, sodium tripolyphosphate.

But although tripoly has shot up into the polyphosphate lead in the past four years, producers keep holding their breaths lest something break the magic spell, burst the balloon that has been pumped up by the synthetic detergents.

Worst that could happen would be a sudden shift from tripoly as a detergent builder. About 85% is now being used this way. Of course, if a new favorite builder were also a phosphate, no serious adjustment would occur. As insurance, though, new uses are being pushed hard. One such application is the removal of pitch from wood pulp to make a lighter colored paper stock.

Aside from complete abandonment of tripoly as a builder-perish the thought-the hard facts point to a flattening of its growth curve. For synthetic detergents, having grabbed about half the soap market in the last five years, must now look for new outlets. In terms of tripoly, consump-

tion translates to:

	Tons Used
1948	50,000 (aprox.)
1951	232,000
1952	370,000 (est.)
1955	450,000 (est.)

Grass Roots: The last line of defense for the phosphorus makers would be a falling back to the superphosphate fertilizer field. At best,

capacity acid is limited by the supply of low-cost sulfuric acid. By contrast, to fight a tailor-made set-up such as Texas City Chemicals' wherein an abundance of cheap sulfuric is assured, would be almost futile.

Now and Then: Putting the big pieces together, the picture for phosphorus shapes up like this:

• Over the short term-say the next two or three years-look for a scramble to sell present phosphorus and phosphate markets. The line up: new furnace capacity, vying with burgeoning wet-process output.

· Later, depending upon how fast new products are developed, how much present markets expand, and how much as-yet-unheralded capacity is added, supply and demand may well balance out.

Army Chlorine

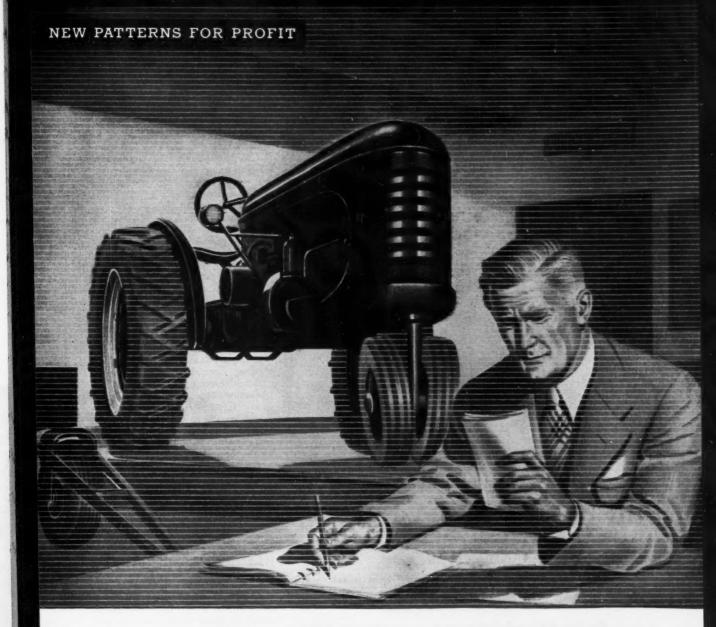
Last week the chlorine industry got a fill-in of recent military requirements for their product, a peek at the Chemical Corps' mobilization blueprint.

In an address at the annual meeting of the Chlorine Institute assembled at the Biltmore Hotel in New York last Thursday, Brigadier General Henry M. Black, Commanding General, Chemical Corps Materiel Command, told the story of chlorine since Korea.

"At the outbreak of hostilities," related Gen. Black, "there were no appreciable surpluses of chlorine on the civilian market. The Chemical Corps saw that an acceleration of military procurement would create an acute shortage if production were not substantially increased."

General Black then outlined the steps taken by the Corps to meet the emergency need.

"In consideration of the shortage of



Could a Coating That Cuts Drying Time 94% Save You Money?

Recently a manufacturer of farm equipment was worried over high painting costs. He heard about styrenated alkyds and investigated. He learned that styrenated alkyds could be formulated into finishes that air-dried tack-free in 15-20 minutes instead of the 4 hours required by the straight alkyd finishes he was using. He also learned that when the straight alkyd was styrenated in a 1:1 ratio, it could cut the cost of the coating vehicle 25%!

He talked it over with his paint supplier. The paint maker readily produced a heavily pigmented coating that gave good luster and did the job with a single coat. Then the paint maker went further. He added several styrenated alkyd formulations to his line. He promptly got orders from toy and metal locker manufacturers who wanted air-drying finishes they could recoat as fast as possible. He reformulated several of his baking finishes, using styrenated alkyds, and lowered his cost. These products brought new accounts in the metal furniture business.

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SPECIALTIES



WATERPROOF OUTBOARD: For prime applications in protection, silicones.

Still on the Way up

New products, expansion—that's the news in the jack-rabbit growing silicone field.

The trend to silicones in water-repellency paints marks them as the fastest-moving specialty outlet—a new below-grade masonry water-repellent has just hit the market.

But the million-dollar market in silicones for polishes seems to be the top specialties outlet.

Last week at the Chicago Home Builder's Show, the latest silicone specialty was unveiled. It's Prima Products' Silitex S. F., which appears to be the first silicone cement paint to offer below-grade waterproofing for home use."

But that isn't the only new silicone product to make the news. Dow Corning has just introduced three new items: Dow Corning 994 resin, for coating glass cloth and for bonding resins; DC impregnating varnish 997,

for electrical equipment; and a laminating resin, DC 2105, said to provide 100 times more high-temperature protection than class H insulations. All are claimed to greatly boost the high-temperature operating life of electrical equipment; in addition, the varnish and the laminating resin are said to extend and simplify silicone use.

Expansion, too, is in the news. General Electric has completed a \$5-million enlargement of facilities for making polish silicones (CW, Jan. 17).

Waterproof Walls: As far as actual specialty uses go (GE tabs silicone rubbers as the biggest single silicone item; Dow Corning has a new Silastic plant coming in), the Prima paint highlights the booming silicone applications in masonry water-repellency

products. The major silicone producers seem to feel that this segment of the business is just being tapped, that there's still tremendous room for growth here.

Still unsettled is the suit against Dow Corning filed by Ranetite Mfg. Co. (St. Louis), which charges the Midland firm with deliberate patent violation in regard to water-repellent paint manufacture.

Another aspect of water-repellency has received considerable attention lately—home-applied aerosol water proofers (CW, Dec. 6). Regarding these, DC offers a note of caution: Its tests indicate that only mill-applied, cured-in-the-fiber silicones can give permanent water-repellency, though they endorse the value of the handy products.

Polishes Shine: But if the waterproofing paints seem to be the swiftest growing specialty application, the polish business is still the number one consumer item. These polishes—for autos, furniture, and the like—contain from 2% to 6% silicones. Even with that small content, close to \$1 million worth of the material is used by the formulators each year.

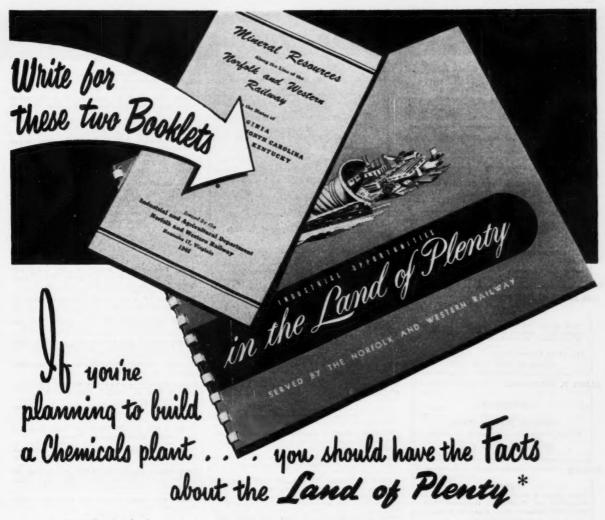
Car polishes, put on the market in the spring of 1949 and in full swing by the following year, make use of a silicone fluid selling for about \$3.80/pound. This is nearly a 25% decrease in price of the raw material from the time the polishes were introduced.

And though polishes and water-repellents are big specialty uses, they're far from the only ones. In its recent brochure "What's a Silicone," Dow Corning lists nine main headings of silicone use—fluids (like instrument needle damping liquids), mold release agents, lubricants, antifoaming agents, protective coatings, silicone rubbers, and electrical insulation.

More to Come: While new uses for silicones keep coming in, research on new silicones goes on too. Not long ago General Electric introduced a new water-soluble silicone, SC-50. DC claims to have a similar product, and there are some indications that these compounds may find use in soil stabilization or in manufacture of waterproof paper.

Major names in silicones supply haven't changed much. Likely, Dow Corning still has the number one spot—estimated to be at least 75% of the polish silicone market. GE is giving DC a run for its money in variety and volume; Linde Air Products is the leading supplier of water-repellency products; Plaskon is producing paint copolymers and intermediates.

^{*} Prima Products, Inc. (New York) is offering Silitex S. F. in white and four pastel colors. Sold at \$3.95 per gallon, it is mixed with water, must be applied within two hours of mixing. It is described as a cement-base powder, with silicones and metallic compounds. On mixing, a reaction is said to occur between certain paint components to give a pore-filling coating, claimed to resist an eight-ft. head of water.



These two booklets, Mineral Resources Along The Line of the N&W and Industrial Opportunities In The Land of Plenty, will give you general information about this great and growing chemical manufacturing region. Write for them, and familiarize yourself with the general advantages The Land of Plenty offers the chemical industry—

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Rubber Mill, 12" x 24" Birmingham. Loob Equip-Supply Co., 1927-A North Ave., Chicago.

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Tanks, Alum, closed-330, 480 and 1450 gal. Perry Equipment. 1415 N. 6th St., Phila. 22, Pa.

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SPECIALTIES



Vinvl Goes Gardening

AIRLAYERING, a centuries-old plant propagation method, has gone plastic. Key: a vinyl film, coated with a growth - promoting hormone - insecti cide - fungicide - fertilizer compound. Here's how it works, according to maker, Agri-Plast Products Co. (Sarasota, Fla.): Bark is peeled in an inchwide ring from the branch selected for rooting. This ring is covered with a ball of damp sphagnum moss, and the moss is then covered with the film. In three to eight weeks, a mass of roots results; the branch is clipped off (see cut) and there's a plant ready to set out.

Agri-Plast is cagey about the coating compound: Three hormones are employed, it claims; fungicide is dithiocarbamyl; insecticide is undisclosed; fertilizer includes trace elements. Agri-Plast admits untreated vinyl will work, says growth is slower, and success not as regular. Airwrap package of eight complete units will sell for \$1.95.

Boost for 22

In a recent New York Sunday Times, the John Wanamaker department store took two pages to tell customers about some 22 specialties chemicals.

Under the heading, "Wanamaker's londer Chemicals," the cleaning Wonder Chemicals," aids-polishes, touch-up paints, and the like,-were given attractive billing. Wanamaker's has always readily accepted good specialty items, gener-

ously boosted them. Wanamaker's was "first in New York" to offer many of these newly introduced products.

The firm reports that response to the "community" ad was excellent. "Every item mentioned pulled," reported one store spokesman. To capitalize on the grouping in the ad, all products were similarly grouped in the store's housewares section, although a number of them might have been logically placed elsewhere.

Not only did the individual prod-

ucts draw, but the assembled display appeared to promote impulse buying of other items.

Although pleased with the success of its adventure, Wanamaker's doesn't plan on repeating it in the near future, although it admits having some-

Cleaner-but Brighter?

thing up its sleeve for late February.

The first Glycerine Producer's Assn. awards were features of the American Soap and Glycerine Producers Assn. meeting last week at New York's Waldorf Astoria. General pitch was the industry's outlook for 1953.

With synthetic detergent sales booming, and soap sales slipping; with the U.S. Dept. of Justice charging soap's "big three" and the Assn. with restraint of trade; with glycerine "requiring real selling," the need for an examination of future possibilities was apparent.

Even the Glycerine awards, inaugurated this year (CW, Jan. 31) are planned with an eye to the future -to potential outlets for the polyol.

And in their looksee's at what's ahead, the Assn. covered things both broadly and specifically. For the broad



WRISLEY'S WRISLEY: GPA head for another year.

CHEMICAL WEEK . ADVERTISING INDEX FEBRUARY 7, 1953

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DUVAL SULPHUR & POTASH CO 45 Agency—Liller, Neal & Battle, Adv.	WESTINGHOUSE ELECTRIC CORP 4, 5 Agency—Fuller & Smith & Ross, Inc.
EASTMAN CHEMICAL PRODUCTS, INC 27 Agency—Kenyon & Eckhardt, Inc.	WESTVACO CHEMICAL DIV., FOOD MA- CHINERY & CHEMICAL CORP 2nd Cover Agency—James J. McMahon, Inc.
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ELDORADO OIL WORKS	WINTHROP-STEARNS, INC B48 Agency—The Thompson-Koch Co., Inc.
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Agency—J. M. Mathes, Inc.
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Sen Francisco 4 Ralph E. Dorland, 68 Post St., Douglas 2-4600
Boston 16350 Park Square Building, Hubbard 2-7160
Detroit 26
Pittsburgh 22

SPECIALTIES . .

outlook, Sen. Paul Douglas offered his predictions of the general economic picture for 1953-things are pretty cheerful.

Zeroing in on the supply situation for particular products:

- · alkalies-soda ash, caustic soda, and caustic potash-facilities can provide for any industrial expansion.
- · detergent phosphates-no supply concern.
- · essential oils-difficult to generalize, but prices will likely rise.
- · fatty acid raw materials-definite surpluses, exports may be a hope.
 - petroleum alkylates-plentiful.
 - · packaging-good.
 - · sulfuric acid-no problem.

Retained in the presidency of the organization was George A. Wrisley of Allen B. Wrisley Co. (Chicago), who stepped into that position for the first time last year.

Molders Cheer: Lustrex 886 is a new foundry resin, introduced by Monsanto, claimed to improve sand workability. One pound of the material (about \$1.10) added to a ton of sand will eliminate most cracks, fissures, and spots characterizing untreated sands, it is stated.

Round Two Bell: As expected, attorneys for Schwegmann Bros. Giant Super Markets in New Orleans have filed an appeal in the case where Schwegmann was enjoined from selling Eli Lilly products below "fair

trade" prices.

There are now six other firms in addition to Lilly lined up against Schwegmann, sworn enemy of socalled fair trade: Bristol-Myers; Johnson and Johnson; Personal Products; Matheison Chemical (Squibb); Lever Bro., and Bayer Aspirin.

More or Bigger: Just chartered in Charlotte, N.C., was the M & M Chemical Co., Inc., capitalized at \$100,000.

- Also recently chartered: Delco Chemicals, Inc., in Dover, Del. Capital is listed at \$200,000.
- And Paisley Products, Inc., Chicago (div., Morningstar, Nicol, Inc.) has purchased Hayes Adhesives Co., St. Louis.
- The Kreso-Tol Chemical Co., recently chartered in Greensboro, N.C., will open a plant soon in Greensboro. The Kreso-Tol Corp. of New York, which has a plant in Rochester, N.Y., will be dissolved.
- In Norfolk, Va., the James K. Hollomon Co., Inc., capitalized at \$50,000, will establish a plant to manufacture its Ho-Co hand cleaner.



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No wonder that Reichhold has plants on every continent ... that it has become a *major* producer of synthetic resins for a variety of applications, as well as a manufacturer of chemical colors, phenol, glycerine, phthalic anhydride, maleic anhydride, sodium sulfate and sodium sulfite.

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Uses of RCI Products

BRAKE LININGS: PLYOPHEN powdered phenolic resins.

CANVAS, PAPER AND GLASS CLOTH LAMINATES: PLYOPHEN cresol, phenolic and resorcinol-formaldehyde resins and varnishes; LAMINITE polyester resins.

CASTINGS: FOUNDREZ powdered phenolic resins (for the shell molding process); FOUNDREZ liquid phenolic resins and FOUNDREZ core oils (for core binders).

FURNITURE, PLYWOOD, FLOORING, HARDWOOD AND CHIPBOARD: HYDROPHEN phenolic glues; PLYACIEN protein glues; PLYAMINE urea-formaldehyde glues; PLYOPHEN phenolic and resorcinol-formaldehyde glues.

GRINDING WHEELS: PLYOPHEN powdered phenolic resins.

INSULATION: PLYOPHEN liquid phenolic resins (for binding fibre glass and rock wool batts).

MOLDING COMPOUNDS: PLYOPHEN powdered phenolic resins.

PAINTS, VARNISHES AND LACQUERS: BECKACITE (1) fumaric, (2) maleic and (3) modified phenolic resins; BECKAMINE urea-formaldehyde resins; BECKOLIN synthetic oils; BECKOPOL modified phenalic resins; BECKOSOL (1) phenolated, (2) phthalic-free, (3) rosin modified, (4) pure drying and (5) pure non-drying alkyd resins; KOPOL processed Congo copals; PENTACITE pentaerythrital resins; STY-RESOL styrenated alkyd resins; SUPER-**BECKACITE pure phenolic resins; SYNTHE-**COPAL ester gums; WALLKYD pure drying alkyd resins (for alkyd flat wall vehicles); WALLPOL vinyl-type copolymer latex emulsions (for latex flat wall coatings); RCI inorganic chemical pigment colors.

PAPER: BECKAMINE urea-formaldehyde resins (for adding wet strength, impraving the wet rub of starch-clay coatings, and waterproofing starch adhesives); RCI inorganic chemical pigment colors (for paper coloring); STYRESOL styrenated alkyd resins (for paper coating).

PRINTING INKS: BECKACITE fumaric, maleic and modified phenolic resins; BECKO-LIN synthetic oils; BECKOPOL modified phenolic resins; RCI inorganic chemical pigment colors.

TEXTILES: FABREZ urea-formaldehyde resins (for crush-proofing and dimensional stabilization).





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